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BRAITHWAITE'S RETROSPECT.

VOL. XXXII. JULY—DECEMBER, 1855.

THE

RETROSPECT OF MEDICINE:

BEING

A HALF-YEARLY JOURNAL,

CONTAINING A RETROSPECTIVE VIEW OF EVERY DISCOVERY AND PRACTICAL IMPROVEMENT IN THE MEDICAL SCIENCES.

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EDITED BY

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ETC.

VOL. XXXII. JULY—DECEMBER.

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A SYNOPSIS,

CONTAINING A SHORT ABSTRACT OF THE MOST PRACTICAL ARTICLES IN THE FOLLOWING PAGES: SHOWING, AT A GLANCE, THE MOST IMPORTANT INDICATIONS OF TREATMENT PUBLISHED BY DIFFERENT WRITERS WITHIN THE LAST HALF-YEAR. (ARRANGED ALPHABETICALLY.)

DISEASES AFFECTING THE SYSTEM GENERALLY.

CANCER.—The topical use of chloride of bromine for the cure of cancer has lately attracted much attention on the continent. The formula of the paste used is the following: Chloride of bromine, three parts; chloride of zinc, two parts; chloride of antimony, one part; chloride of gold, one part; powder of liquorice, sufficient to make a paste. It must be spread on linen and applied for twenty-four hours, the surrounding parts being protected by chloroform ointment. (M. Landolfi, p. 45.)

CELLULAR DROPSY.—The following may be employed with great advantage as a diuretic and alterative: ℞. Extract. conii, ℥j.; pulv. cantharid. ℈ij.; hydr. chlorid. ℥ss.; pulv. ipecac. ℈i. M. Ft. pil. xl., sum unam ter in die. (Dr. Horace Green, p. 386.)

FEVER.—Recollect that the ordinary rules of diagnosis lose much of their value in typhus fever. You may have all the signs of inflammation of any of the vital organs, without the slightest organic change. Even the physical signs of a pneumonia, when occurring in a case of typhus, are not to be taken as proof that a local inflammation has occurred. (Dr. W. Stokes, p. 22.)

The treatment of fever may be summed up as being a combination of measures to reduce excessive heat, to insure proper excretion, and to act on the semi-paralyzed nerves. To insure proper excretion is more difficult than to reduce the temperature; but it is best done by furnishing to the system a due supply of alkaline salts, as the chloride of sodium, which aids the formation and elimination of urea; or the salts of potash, as the nitrate, which has the same effect. Purgatives probably act by aiding this elimination of urea, which is retained in the blood, and may pass off by the mucous membrane of the canal. To restore the nerves to their normal action, you must give nutrients and stimulants to support and strengthen; when the heart's action is very rapid, ammonia is indispensable. (Dr. E. A. Parkes, p. 11.)

Intermittent Fever.—Give two ounces of the infusion of olive leaves three times a-day; made by macerating two ounces of the fresh leaves in a pint of water. (Mr. T. Spencer Wells, p. 23.)

Creasote is very useful, on account of its specific influence over the abdominal ganglia of nerves, especially the solar plexus. (Zwetkoff, p. 25.)

Quinine.—The following are the general rules, established by M. Briquet, for giving quinine in fever:—1st. Give each hour or second hour the sixth or twelfth part of the quantity to be taken daily, and leave ten hours interval without any quinine. 2nd. Gradually increase the dose, until head symptoms, vertigo, and pain are produced. In *ague*, give the quinine so as to produce the maximum effect at the commencement of the febrile action. In *typhoid fever*, give quinine during the night, for the access comes on in the afternoon, and it requires some hours after administration before it produces its full effect. Always give it in solution: when given in the form of pills it is only one-sixth as active in three hours. (Dr. H. Bence Jones, p. 391.)

Scarlatinal Dropsy.—As a diuretic, the root of Caïnça is much extolled. There is not in the whole Materia Medica any drug which acts with more promptitude or more success. ℞. Caïnça root ʒij., water ℥viij. Macerate for twenty-four hours, one-third to be taken every two hours. (M. Bruguier, p. 24.)

AFFECTIONS OF THE NERVOUS SYSTEM.

Chorea.—This formula is an excellent anti-spasmodic and tonic. ℞. Ext. hyoscyami ʒss.; ferri valerian. ʒi. M. Ft. pil. xxx., sum unam ter in die. They may be given with great advantage for the treatment of all the neuralgic affections of anæmic and debilitated females. (Dr. Horace Green, p. 385.)

Neuralgia.—In severe cases give half a grain of digitalis in the form of pill, every three hours, to subdue excitement. It may be necessary to produce a decided impression on the heart, but generally relief is obtained without. (Mr. J. Hardwick, p. 65.)

When the disease has a centripetal, not a central origin, the more direct the application of the narcotic, the greater benefit you may expect to result. For this purpose, make a puncture with a small trocar over the most tender spot in the course of the nerve, and inject, by means of a very small syringe, about 20 or 30 drops of Battley's sedative solution into the cellular tissue. In a very short time it will be attended with entire relief. (Dr. A. Wood, p. 61.)

The narcotics and sedatives, when appropriately combined, are more prompt and decided in their action than when separately

administered. ℞. Extracti hyoscyami, ʒss.; morph. sulphatis, gr. iij.; strychniæ, gr. ii.; capsici pulv., ʒss.; zinci sulphatis, gr. xv. M. Ft. massa; in pilul. xxx. dividenda; sum. unam ter in die.. The above pills are especially serviceable where the branches of the fifth pair of nerves are involved and unattended by organic lesions; or another valuable remedy in these cases is: ℞. Ext. hyoscyami ʒss.; zinci valerian. ℈i. M. Fiat pil. xxx. cap. unam ter in die. (Dr. Horace Green, p. 385.)

AFFECTIONS OF THE CIRCULATORY ORGANS.

Palmar Arch, *Wounds of the.*—In primary hemorrhage, ligature is generally effectual, but if moderate exploration fail to discover the bleeding vessel, it may be completely controlled by properly-adjusted pressure. If secondary hemorrhage occur, exploration ought not to be attempted, judicious and properly-applied pressure will be found quite effectual; and, under no circumstances whatever, is deligation of the arterial trunks on the cardiac aspect to be deemed necessary or attempted. Apply the tourniquet to the brachial artery, strap up the wound with plaster, and place upon it a firm compress of lint, bandaging the hand and forearm moderately tight; also keep the tourniquet sufficiently pressing upon the brachial artery to moderately check the impetus of the circulation through the limb. (Dr. C. D. Arnott, p. 185.)

Subclavian Aneurism.—When the usual method of treatment is inadmissible, you may succeed by pressing the sides of the aneurismal sac together with the thumb so as to displace a portion of the lamellated fibrine in the aneurism; these clots will be directed forward by the current into the axillary and brachial, so as to block up the distal end of the artery. If followed up by local pressure, most striking and satisfactory results may be obtained. (Professor Fergusson, p. 183.)

AFFECTIONS OF THE RESPIRATORY ORGANS.

Chronic Bronchitis.—The following combination of hydrocyanic acid is a most valuable remedy in the treatment of chronic bronchial disease, in allaying the cough of phthisis, and in all pulmonary catarrhal diseases, unattended with fever. ℞. Acidi. hydrocy. med. gtt. lx.; morph. sulph. gr. iij.; vin. ipecacuan. ℥ss.; mist. amygdal. ℥v. M. ft. mist. sum. coch. parv. bis terve die. If attended with some degree of fever, the following may be substituted: ℞. Acid. hydrocy. med. gtt. xl.; vin. antim. p. t., ℥ss.; syr. tolutan, ℥iss.; mucil. acaciæ, ℥ij. M. ft. mist. cap. coch. parv. ter in die. (Dr. Horace Green, p. 382.)

Cod-Liver Oil.—The following is a good formula, and completely masks the disagreeable taste and odour of the oil: yolk of one egg;

sugar, ʒj.; orange flower water, ʒj.; cod-liver oil, ʒiij.; essence of bitter almonds, gtt.j. (p. 91.)

Croup.—Sulphate of copper does not produce the depressing effects of other emetics, is equally safe, and much more sure in its action. Make a solution of eight grains in one ounce of distilled water, and give a teaspoonful to a tablespoonful every ten or fifteen minutes, according to the ease or difficulty with which vomiting is produced, and until the more violent symptoms are abated. When improvement in the symptoms takes place it must be continued in smaller doses and at longer intervals. (Dr. Hönerkopf, p. 101.)

Hooping Cough.—Hydrocyanic acid surpasses in efficiency every other known general remedy. It must be given as soon as the characteristic whoop is heard. ℞. Acid hydrocyan. med. gtt. xxv.; vin. ipecac. ʒij.; syr. tolutan. ʒj.; aquæ. dest., ʒiij. M. ft. mist. sum. coch. parv. 4ta horâ. If there be any bronchial inflammation present, the sedative ought to be preceded by the exhibition of an emetic. The dose of hydrocyanic acid for an infant is about three-quarters of a minim (Scheele's) every four hours; for a child three years of age, one minim to one and a half minims every four hours; for children ten or twelve years of age, one and a half to two minims every four hours. [We should be afraid of this dose in children. Ed. B. R.] When the inflammation has extended to the gastric mucous membrane, if combined with liquor potassæ and bitter vegetable infusion, it will exert a prompt and a decidedly happy influence on the diseased action. (Dr. Horace Green, p. 383.)

The following mixture is very useful in the third stage of pertussis: ℞. Tannin gr. vj.; ext. belladon., gr. j.; ext. cicutæ, gr. iv.; inf. sennæ, ʒij.; aq. fœnicul., syr. altheæ, āā. ʒj. One teaspoonful every two hours. (Dr. Berthold, p. 405.)

Phthisis.—When cod-liver oil is constantly vomited, give oleine prepared from the same oil in the same dose; it will have all the beneficial without any of the disagreeable effects of the oil itself. (Dr. A. Leared, p. 91.)

Give one to three drachms of glycerine in an ounce of water daily, as a substitute for cod-liver oil, it is quite as efficacious, much less disagreeable, does not disorder digestion, and may be combined with any other remedy. (Dr. Crawcour, p. 95.)

Dyspepsia of.—The severity of the tubercular dyscrasia may be measured by the facility with which fats, oils, sugar, &c., are relished and digested. If a patient has acquired a liking for cod-liver oil and other kinds of fat, the disease is in abeyance; and the most ominous symptom of all is when the patient quickly looses all relish for such things. In all cases accustom the patient to oils and other fats, if the stomach will not bear them, give tonics, with an alkali or mercury in small doses and with great caution, until the stomach

is improved; then give freely hydrocarbons, such as pork-chops, bacon, butter, cream, sugar, dried fruits, alcohol in various combinations, &c. (Mr. J. Hutchinson, p. 117.)

Pneumonia.—The surest remedy to reduce the frequency of the pulse is aconite. The tincture of the P. L. should be avoided as uncertain. It is most to be depended upon when made from the alcoholic extract of the root, say one grain of the extract to twenty drops of alcohol; the dose of this tincture would be from half a drop to three minims, (one drop is about equivalent to one grain of opium.) For children one or two drops may be added to eight ounces of water, and half an ounce given every two hours; for an adult, half a drop every two hours will very soon reduce the feverish excitement. Its action must be carefully watched least an overdose be given.—To relieve local symptoms the patient may be placed in water as warm as can possibly be borne, until the patient faints, which will usually be in about twenty minutes; or instead of this Junod's exhausting apparatus may be used, which will draw the blood from the affected part to the extremity. As a counter-irritant, the acetum lyttæ with chloroform vesicates very speedily, especially if covered with cotton-wadding immediately after the application. This produces comparatively little discomfort to the patient, and, if repeated occasionally, a vast quantity of serum may be got rid of. The next best application to the chest is flannel dipped in turpentine. At the commencement, promote expectoration by small doses of emetic tartar, and afterwards support your patient by mild emollient diet, broths, and gentle stimulants. (Dr. C. H. F. Routh, p. 95.)

Trachea.—*Topical Medication of.*—Tubercular cavities may be injected by carrying a long flexible tube down to the bronchial division of the trachea, then with a small glass syringe, injecting one and a half drachms of a solution of nitrate of silver thirty grains to the ounce. (Dr. Horace Green, p. 69.)

Tubercular Infiltration.—Greyness indicates that the exudation is chronic; yellowness that it is acute; jelly-like consistence that it is recent. The grey infiltration takes place while there is yet a fit state of blood to pour out contracted plasma; the yellow points to a deteriorated condition of the blood when the disease has injured the constitution; the jelly is a still later exudation, and takes place towards the close of life, when the blood is very poor and unable to furnish a coagulable lymph. (Dr. C. Radcliffe Hall, p. 81.)

AFFECTIONS OF THE DIGESTIVE ORGANS.

Bowels, *Spasmodic Stricture of.*—The severe bearing down pains from the bowels being long confined, may be effectually relieved by a gentle tapping or vibratory application to the sphincter ani with a blunt wooden instrument, as a common ruler. (Dr. J. W. F. Blundell, p. 123.)

Cholera.—When all other means failed, recourse was had to the hot salt water bath at 110° Fahr., with immediate, signal, and triumphant success. Perhaps this result may partly be owing to the disinfecting measures which were adopted, for the house was effectually fumigated with chlorine gas from the basement to the roof. (Dr. T. H. Starr, p. 415.)

During the stage of premonitory diarrhœa, give three grains of acetate of lead, and two grains of opium, every two or three hours, with beef tea and brandy; apply mustard to the abdomen, calves of the legs, feet, &c. If there be rice water purgings, give three grains of calomel, two grains of opium, and two drops of creasote, every hour or two; but in this stage stimulants and tonics are more serviceable when given by the rectum. If the purging has ceased, but the cramp continues very severe, give ten drops of this mixture (chloroform ℥i., camphor ℥ij.) every ten minutes, and as regular medicine, five grains of calomel, and five of rhubarb, every three hours, to excite the liver to action. A small, slow, wiry pulse indicates far greater danger than a soft and compressible one, even though imperceptible at the wrist. (Dr. D. S. Conant, *Amer. Med. Monthly, Feb.* 1855.)

Cirrhosis.—As the absorption of medicines given by the mouth is impeded, Dr. Christison recommends applying fomentations of digitalis infusion to the abdomen, so as directly to arrive at the general circulation. The employment of baths of Kreuznach water might be tried with reasonable hope of benefit. Frictions with cod-liver oil over the general surface might also be tried, seeing that the routine treatment by diuretics and purgatives is so unsatisfactory. (Dr. C. H. Jones, p. 124.)

Colic.—Chloroform given internally is sometimes very useful, 100 to 300 drops may be given per diem, suspended by mucilage, and in divided doses, as the effects are soon dissipated. (M. Aran, p. 123.)

Diarrhœa.—In long continued cases where the usual remedies were given without effect, the carbazotate of ammonia given in grain doses, with the same quantity of gallic acid, and one-sixth of a grain of opium, three times a day, continued regularly for a week or fortnight, has been found to effect a complete cure. (Dr. T. Moffat, p. 39.)

Give one or two ounces of the decoction of tormentilla every three hours. (Mr. J. Hilton, p. 124.)

Chronic.—One scruple of tannin dissolved in four ounces of water, with the addition of one ounce of gum arabic, forms a good mixture for chronic diarrhœa and the third stage of dysentery. Dr. Berthold, p. 405.)

Of Children.—It may be symptomatic of organic disease of the mucous membrane, or, it may be an idiopathic affection catarrhal in its nature. If this last, the action of borax lavements on the mucous membrane is regarded as analogous to the good effects of borax on the mucous membrane of the mouth. The following is the formula for this lavement: Borax ℥iv. to ℥vi.; sugar and water ℥iv.. (M. Bouchut, p. 125.)

Dyspepsia.—When there is a good deal of *uneasiness about the arch of the colon*, or lower part of the abdomen, two or three hours after taking a meal, owing to the passage of the food over the morbidly increased irritable mucous membrane in that part, the greatest advantage will be derived from the following medicine: ℞. Tinct. cinchon. co. ʒiss.; tinct. calumb. ʒiss.; tinct. nucis vomicæ ℥ss. M. A dessert-spoonful three times a day, an hour before meals. In children, a combination of soda with rhubarb will answer almost as well. (p. 104.)

When the only symptom is *loss of appetite*, without any discomfort at the stomach, sulphuric acid with small doses of quinine often suits well, or the infus. gentian. co. with liquor potassæ. If there is also constipation, a mild aperient must be given daily, or it may be combined with the mixture: ℞. Magnes. sulph. ℥j.; acid. sulph. dil. ʒj.; tinct. gent. co. ℥j.; aquæ ℔j. Sum. ℥j. ter in die. (p. 106.)

Where the appetite is good, but there is a *want of digestion*, to restore the gastric secretion, nothing answers the purpose better than pulv. ipecac. in half-grain or grain doses, twice a-day, or combined thus. ℞. Pulv. ipecac. gr. ss-i.; pulv. rhei. gr. iii.; ext. gentian. gr. i. M. ft. pil. To be taken twice a-day, shortly before breakfast and dinner. (p. 106.)

If there be *simple acidity*, give alkalies until relieved, and afterwards vegetable tonics. The following are good formulæ: ℞. Inf. gentian. co. ℥ii.; aq. calcis ℥ij.; tinct. hyoscyam. ʒi. M. two or three times a day. ℞. Aq. calcis. ʒvii.; sp. ammon. aromat. ʒss.; tinct. hyosc. ʒss.; magnes. carb. ℈i. M. Draught twice a day. (p. 108.)

For *pyrosis*, bismuth proves an excellent remedy. ℞. Bismuth. ox. ℈ii.; magnes. carb. ʒi.; pulv. aromat. ℥ss.; mucilag. ℥i.; t. opii. ʒi.; aq. cassiæ ℥v. M. Take two tablespoonfuls when the pain is severe. (p. 108.)

When the eructations are tasteless or rancid, acids do most good; the nitro-muriatic acid with half-a-drop of creasote before meals answers well. (p. 109.)

When there is *morbid irritability of the stomach*, prussic acid has the most decided good effect; it blunts the morbid sensibility, and

may be given with bitter infusion, as the following: ℞. Acid. hydrocyan. *(Scheele's)* gtt. xvi.; tinct. calumbæ ℥ss.; aq. font. ℥iiiss. M. ℥ss. three times a day.—If with the pain there be also acidity or heartburn give: ℞. Acid. hydrocyan. *(Scheele's)* gtt. ii-iii.; sodæ carb. ℈i.; tinct. gentian co. ʒss.; aq. ℥i. M. three times a day.—If the vomiting be severe and continued, the following will be often found effectual: ℞. Acid. hydrocyan. *(Scheele's)* gtt. ii.-iii.; creosot. gtt. i.-ii.-iii.; sol. morph. gtt. xx.; sodæ carb. gr. xx.; aq. ℥iss. M.—In simple vomiting from atony, calumba is an admirable remedy: ℞. Infus. calumbæ ʒvi.; liq. potass. ʒiss.; tinct. humuli ʒiii.; aq. piment. ℥iss. M. One or two tablespoonfuls twice or thrice a day.—The next best remedy to prussic acid is nitrate or oxide of silver, ¼ or ½ a-grain three times a day. (p. 111.)—If the pain does not come on until one or two hours after a meal, Dr. Abercrombie's prescription answers admirably: ℞. Ferri sulph.gr. ii.; pulv. aloes gr. i.; p. aromat. gr. v. M. Three times a day. (p. 112.)

In *anæmic dyspepsia*, the usual treatment for anæmia must be enforced. Sulphate of iron as in Abercrombie's formula, or in pill with quinine, camphor, and ext. aloes, answers very well. Of the sympathetic affections, disorder of the heart's action is perhaps the most frequent; for this the principal remedies are iron and nitrate of silver: ℞. Arg. nit. gr. iii.; p. opii . gr. iii.; p. rhei. gr. xii.; ext. humuli gr. xii. M. Ft. pil. xii. One three times a day.

In *flatulent dyspepsia*, if it be not of an inflammatory character, you will effect much good by the following: ℞. Pulv. Gregorii, p. aromat. āā ℥ss. M. Half a teaspoonful twice or thrice a day, stirred in a little hot water. But you must both regulate the bowels and strengthen the digestive organs by tonics, for this purpose the following answers very well: ℞. Asafœtidæ gr. xxxvi.; p. rhei. gr. xii.; ol. cajeput. gtt. xii. M. ft. pil. xii. ℞. Infus. chirettæ ℨxi.; tinct. zingib. ℥i.; t. hyosc. ʒii. M. Two of the pills to be taken every night at bedtime, and two tablespoonfuls of the mixture morning and mid-day. (p. 116.) If the patient is distressed by the tympanitic distension, give half a teaspoonful of powdered ginger in four ounces of hot water, and apply a hot flannel sprinkled with turpentine over the epigastrium. (Dr. James J. Ross, pp. 103—117.)

Fistula in Ano.—After the division of the sphincter, there is often a relaxed condition of the part, so as to allow the rectum to protrude for several inches. The best treatment for this is the application of nitric acid; but the prolapsion may be entirely prevented taking place, by applying the nitric acid around the margins of the sphincter on the fourth day after the operation, and before the relaxation takes place. (Dr. T. R. Mitchell, p. 203.)

Gastralgia.—The irritability of the nerves of the stomach is, perhaps, best allayed by hydrocyanic acid. The following is an excel-

lent combination: ℞. Acidi hydrocyan. gtt. lx.; ext. belladon. gr. x.; tinct. calumb., syr. simplicis, āā ʒj.; aq. destill. ʒij. M. ft. mist. sum. coch. parv. ter in die. It has also been employed with great benefit in spasmodic asthma. (p. 384.)

Belladonna combined with quinine has been found very efficacious. ℞. Ext. belladon. gr. x.; quinæ sulph. ʒj. M. ft. pill. xxx. sum. unam ter in die.

If occurring in the course of chronic gastritis, the following may be more useful: ℞. Ext. hyosciami ʒj.; argenti nitrat. gr. x.; bismuthi trisnit. ʒjss. Ft. pil. xl. sum. unam bis die.

In cases of obstinate chronic gastritis, or long-continued dyspepsia, the following pills are more efficacious than any other single remedy: ℞. Ext. conii ʒj.; argent. nitrat. gr. x.; pulv. capsici, quinæ sulph., āā ℈ij. M. ft. pil. xl. sum. unam bis terve in die.

Pyrosis is arrested with great certainty by the above pills. (Dr H. Green, p. 386.)

Femoral Hernia.—When you have been obliged to open the sac, you may form the best prognosis by an examination of the bowel immediately above the constriction. If it be of a pale reddish-grey colour, and feel thick and fleshy, the chances are in favour of a successful result: on the other hand, if it be of a bright pink colour, appearing thin as if distended with air, and if there be a large escape of red or dark-coloured serous fluid on opening the sac, the prognosis is most unfavourable. In all cases when the sac is opened, it is a good plan to draw down an inch or two of the bowel, especially when the strangulation has been of long duration, for in such cases perforation not unfrequently occurs from half-an-inch to an inch above the constriction. (Mr. J. Spence, p. 198.)

Mesenteric Diseases.—Great success has followed from the friction of the whole body, night and morning, with a sponge dipped in tepid oil; it produces abundant general sweating, increases the secretions of the liver and kidneys, and procures tranquil sleep. (Dr. Baur, p. 125.)

Piles.—Tormentilla is a very valuable vegetable astringent in cases of piles, passive hemorrhages, diarrhœa, &c. One or two ounces of the decoction may be given every three hours. (Mr. J. Hilton, p. 124.)

Tonsils, *Excision of the.*—First seize the tonsil by a long pair of forceps, terminating in a small hook, pull it gently forwards, then take a curved probe-pointed bistoury, the half of the blade being wrapped round with lint, place it with its back to the base of the tongue, and cut from below upwards; follow the curve of the pillars of the fauces, with the blade inclined inwards at an angle of about forty-five degrees. (Mr. L. Parker, p. 197.)

AFFECTIONS OF THE URINARY ORGANS.

Bladder, *Injection of.*—Take a piece of elastic tubing, the diameter of a quill, and about four feet long. To one end must be attached a small India rubber funnel, the other end grasps the end of the catheter. When ready, the funnel end is held up at arm's length, and water poured in; the pressure of the column of fluid fills the bladder, which may be emptied again by depressing the tube. This tube might conveniently be attached to the end of the female catheter to prevent the need of having any utensil in bed. (Mr. Wormald and Mr. Collingwood, p. 241.)

Catheters, *Lubrication of.*—Castor oil is the best: when cold, it is viscid and adheres well to the instrument, losing its viscidity just at the proper time, when it arrives at the stricture. Olive oil should never be used. If the urethra be very irritable, it ought first to be well lubricated by passing a large instrument down to the stricture, then withdraw it and pass a second, also well greased. (Mr. Wormald, p. 240.)

Diabetes Mellitus.—Gluten bread, made according to the following formula, contains the smallest possible quantities of the elements of sugar: Fresh moist gluten, 24 oz.; bicarbonate of ammonia, ʒ iij. gr. xij.; common salt, ʒ iss.; powdered carraway, 48 grs.; wheaten flour, 4½ oz.; powdered bran, 1½ oz.; salt butter, 4 oz. This will yield 24 oz. of bread. (Dr. Aldridge, p. 425).

Diuretic.—The tincture of asparagus alone, in water, is a very valuable diuretic; but it is most useful in producing the diuretic properties of other drugs, directing them at once to the kidneys. Half-a-drachm to two drachms, will produce copious diuresis. (Dr. S. J. Jeaffreson, p. 135.)

Lithotomy Simplified.—In this operation, the fore-finger of the left hand must be in the rectum, with its point resting in contact with the staff as it passes through the prostate; you must then *cut up to the staff*, with the *back* of the knife to the rectum, and divide the membranous urethra *upwards* as you withdraw the knife. There is thus no risk of injuring the rectum. (Mr. G. Allarton, p. 216.)

Morbus Brightii.—This is not an inflammatory affection, but purely a disease of depraved nutrition; therefore, you must endeavour to improve the general vigour and power of the system, and therewith its nutrition, in every possible way. After the dropsy is removed you must still continue your treatment until the urine is restored to its healthy condition, the blood improved and the system reinvigorated. The following is very useful in these cases: ℞. Acid. nitrici ℥ iij.; tinct. cinchon. ʒ i.; inf. gent. co. ℥ i. Ter die. ℞. Tinct. ferri mur. ℥ x.; aquæ ʒ i. Ter die c. cibo. (Dr. Handfield Jones, p. 126.)

In the sub-acute or chronic form, give five grains of iodide, and five grains of bicarbonate of potass in one ounce of water three times a day. It has been very successful in reducing the general anasarca and improving the condition of the health. (Dr. Corrigan, p. 130.)

Renal Dropsy.—After having fallen into almost universal disuse, diuretics are again beginning to be prescribed in these cases; no other remedies effecting so much relief for the patient. The following is a very good formula: R. Potassæ tartrat. ʒss.; spt. æther nitrici, ʒss.; aquæ piment. ℥j. Ft. haust. ter die sum. (Dr. Burrows, p. 134.)

Retention of Urine.—When employing catheters of minute calibre for retention of urine, considerable inconvenience is often caused from some bending of the shaft; to obviate this, have the shafts of No. 1, and smaller sizes, made equal to the shaft of a No. 2. The latter three or four inches only being of the size indicated by the register, this plan gives firmness, and does not interfere with the part introduced through the obstruction. When the catheter has to be retained for some time, if four or five inches of India rubber tubing be fastened to the end of the catheter, it will prevent the flow of urine down the outside of the shaft, and save the patient much trouble and annoyance.

When perineal abscess is found co-existing with retention of urine, it is very rarely necessary to have recourse to any severer measures than the opening of the abscess, and the passing of the catheter; and further, the sooner the necessary opening is made and the less danger. (Mr. Henry Thompson, pp. 219—230.)

Stricture of the Urethra.—The following method of applying caustic in these cases is free from the ordinary objections to the practice. Coat the end of a catgut bougie very evenly with a fine layer of caustic, by immersing it in fused nitrate of silver. Pass a full-sized straight catheter with one terminal aperture completely *down* to the stricture, then pass the armed bougie through the catheter *into* the stricture, and by gently rotating the bougie, the whole tract of the stricture may be freely and equally cauterized. (Mr. J. Z. Laurence, p. 236.)

Swelled Testicle.—Dissolve gutta percha in bisulphuret of carbon, and spread the substance over the part affected. (M. Eliefsen, p. 247.)

Urine, *Extravasation of, from Injury to the Perinæum.*—We may have extravasation of urine from a rupture of the urethra without any swelling in the perinæum, and in all such cases, where there are all the general symptoms of extravasation and you have reason to fear escape of urine, you must make a free and deep opening into the perinæum, exactly in the medial line. (Mr. John S. Fletcher, p. 242.)

AFFECTIONS OF THE SKIN, &c.

Acne.—Ammoniacal lotions form with the fatty matter of the follicles a soluble soap with an ammoniacal base. (M. Cazenave, p. 258.)

After arsenic has been given for a long time without improvement, try cod-liver oil in teaspoonful doses three times a day; it will often have a marked beneficial effect both upon the health and the disease. Lupus is equally benefited by the same treatment, but there is no cutaneous affection in which cod-liver oil has proved more effectual than in sycosis menti, or mentagra. (Mr. T. Hunt, p. 251).

Eczema, &c.—Professor Malmsten, of Stockholm, has used cod-liver oil externally very successfully in intractable skin diseases. If the whole skin be affected the patient must lie in bed, all the body and bed linen being saturated with the oil; an alkaline bath may be allowed once a week but no other washing or change of clothes until the skin is restored to health. (p. 256.)

Internal remedies are most useful, ointments are injurious. The tincture of the muriate of iron given three times a day I have never known fail. The parts should be daily washed with oatmeal gruel. Occasionally a little powdered starch with oxide of zinc will aid the cure. (Dr. B. Godfrey, p. 254.)

Erysipelas.—If you uphold the powers of the system from the commencement of the attack it rarely happens that secondary phenomena manifest themselves, if you do not, the cellular tissue becomes involved, extensive abscesses form, which reduce the patient exceedingly, or perhaps wear out his life. If the glottis becomes affected and œdematous, you must perform tracheotomy, give food and stimulants perseveringly at stated intervals, strong beef-tea, and half an ounce of brandy every half hour, also ammonia and chloric æther. If the force of the poison falls principally on the mucous membrane of the pharynx so that the patient cannot swallow, the only resource left is to throw strong beef tea injections containing large doses of quinine into the rectum, you may also touch the back of the fauces with the solid nitrate of silver or a strong solution of it, and as soon as the patient can swallow a little, give large and frequent doses of brandy, ammonia, chloric æther, and beef tea. If the plan of feeding by the rectum fails, you must have recourse to the stomach tube, though only when all other means of introducing food are found unsuccessful. If it attacks the peritonæum, producing puerperal fever, or puerperal peritonitis, it must be treated in the same way, or the patient will sink. The stimulating and supporting plan is the best adapted to save life and prevent the secondary effects of this malady. The treatment consists in giving food and stimulants early, freely, and steadily, such as two or three ounces of beef tea at stated times, and from two drachms to half an ounce or an ounce of brandy slightly diluted with water; and if drugs are needed, ammonia, chloric æther, and bark. Dont give two different forms of

alcoholic fluid at the same time, as wine and brandy, gin and brandy &c., and for other nourishment it is desirable to observe the same rule. If you begin this treatment early, from the very commencement of the attack you will prevent both delirium and coma, but if, notwithstanding the treatment, coma does set in, you may with certainty conclude that the blood is poisoned by pus; and death will occur from pyæmia. Of all stimulants the alcoholic are the best, and if you have your choice choose brandy, it acts as an antidote to the erysipelatous poison. The tincture of sesquichloride of iron is very commonly given in this disease, it mainly acts by excluding depressing treatment, and perhaps partly as a tonic, but if you do no more than this you do very little, you must not only prevent depletion and depression, *but you must nourish and support.* (Dr. R. B. Todd, pp. 25-35.)

Traumatic.—As general remedies, give small doses of calomel combined with half a grain of opium, James' powder, and acetous extract of colchicum followed next morning by castor oil to relieve gastric and bilious irritation. Restore the impaired functions of the skin and kidneys by means of nitrate of potass and nitrous ether; beef tea must also be freely given with solution of quinine. If the vascular action is of the asthenic type, wine will be necessary; if the disease be of the phlegmonoid kind incisions will be requisite to relieve the tension. As a local application, there is nothing better than camphor mixture, with a proportion of vinegar, and tincture of opium, applied warm by means of lint, and then covered with oiled silk. (Dr. Bird, p. 259.)

Hospital Gangrene, Erysipelas, &c.—All infection from these may be prevented by having a cradle of open wire-work filled with dry well burnt charcoal, hanging from the cage, which is placed over the limb. Charcoal in the shape of poultice is useless, for its power of absorbing noxious gases is destroyed when damp. (Dr. Stenhouse, p. 270.)

Nævus.—Paint the surface over with tincture of iodine every alternate day, leaving it off for a few days if the skin becomes irritable. The growth of the nævus will be arrested, and it will finally disappear. (Dr. S. Edwards, p. 268.)

Onychia.—If you see this disease early, poultice until you can insinuate a small shred of lint under the angle and side of the nail, by means of a small probe; you must then wet this with a solution of nitrate of silver (℥i. ad ℥j.). Keep the lint in for forty-eight hours, and by renewing two or three times the disease will becured. To prevent a return, caution the patient against rounding off the angles when cutting the nails, and direct him to cut them straight across. (Mr. J. Hamilton, p. 262.)

Take a thin flat bit of silver nearly the length of the nail, and bend it into somewhat of a *f* shape. Push one end down between the ulcerated skin and the nail, and hook it under the rough edge

of the latter: the upper end must be bent outwards, so as to press upon the fungoid growth, and secured by a plaster and bandage. By this means the nail is elevated and the overhanging skin depressed. It need not be interfered with for several days, when it may be re-adjusted, and the part soon heals. (Mr. G. M. Humphry, p. 266.)

Porrigo.—External remedies are most useful. In the first stage simple mercurial ointment; in the second stage every particle of incrustation must be removed, and nitrate of mercury ointment applied night and morning. Internally you may give cod-liver oil, and a simple rhubarb powder occasionally. (Dr. B. Godfrey, p. 254.)

Scaly Cutaneous Diseases.—If there be any medicine more safe and manageable, in careful hands, than another, it is arsenic united with chlorate of potass; but if there be any medicine more dangerous and unmanageable than another, it is the compound of arsenic, iodine, and mercury, known as Donovan's solution. (Mr. T. Hunt, p. 249.)

Sebaceous Growths.—When found under the eyelid, pass a small probe through them on the conjunctival surface, and stir up the contents with the probe dipped in nitric acid. (Mr. J. Erichsen, p. 269.)

Ulcers *of the Leg.*—The following formula has been very successfully used in chronic non-specific cases of this kind: ℞. Cretæ. prep. ℔iv.; adepis suilli, ℔j.; olei olivæ ℥iij. M. (Dr. Patterson, p. 269.)

Variola.—Many are the remedies which have been recommended for the prevention of the pits left in the place of the pustule. Mercurial ointment has perhaps been most useful, though it is very objectionable. Trousseau's Elastic Collodion is much more useful and agreeable; it is formed of collodion 30 parts, Venice turpentine $1\frac{1}{2}$, and castor oil $\frac{1}{2}$ part. It must be applied over the whole face three or four times a day. The result has been highly satisfactory. (M. Delioux, p. 257.)

AFFECTIONS OF BONES AND JOINTS.

Femur, *Dislocations of.*—Let the operator stand on the injured side, seize the ankle with one hand and the knee with the other, then flex the leg on the thigh, next strongly abduct it, carrying it over the sound one, and at the same time upward over the pelvis, by a semi-circular sweep, as high as the umbilicus; then abduct the knee gently, turn the toes outwards, and carry the foot across the opposite sound limb, making gentle oscillations of *the thigh*, when the head of the bone will slip into its socket. Traction on the femur is force misapplied, it is unphilosophical and absurd, contra-indicated both by the anatomy of the joint and by the plainest laws of mechanics. As muscles are the principal agents in producing dislocations, so they may be made our most efficient assistants

in reducing by manipulation, consequently "etherization to the extent of complete relaxation," instead of being an advantage is a detriment. (Dr. W. W. Reid, p. 165.)

The method of reduction by some American surgeons is to flex the leg on the thigh, carrying the thigh over the sound one, upwards over the pelvis, as high as the umbilicus, and then abducting and rotating it. At Guy's, the method is not so violent. In dislocation into the foramen ovale, adjust a towel around the thigh just above the knee, give chloroform, and when all muscular irritability has ceased, place the heel against the head of the femur, and make extension in a line parallel with the central axis of the body, if the limb now be slightly rotated, the head of the femur will be replaced. In dislocation on the dorsum ilii, give chloroform, place the foot against the pubes, grasp the limb above the ankle, make direct extension, with gentle rotation outwards, and the reduction will be accomplished. (Mr. J. Birkett, p. 172.)

If on to the dorsum, put the patient completely under chloroform; then take the thigh, flex it on the pelvis, bend it outwards, and make a slight rotatory movement, when the head of the bone will slip into its socket. No extension whatever is required, simply lift up, bend out, roll in. Movements modified according to the different positions taken by the femur, are equally effectual with the other varieties of dislocation at the hip. (Mr. E. Cock, p. 174.)

Fracture of the.—Bandage the limb carefully and firmly from the foot to the crest of the ilium, apply a thick solution of starch all over the bandage so as to soak it well; then apply four millboard splints to the thigh, and two to the leg, and over these more starch; and lastly, more bandage, exactly similar in extent to the first. The limb must be kept as motionless as possible for forty-eight hours, the apparatus must then be cut up anteriorly from the toes to the groin, and the limb examined; if all seems going on well, it may be closed again by another bandage and starch, and when dried, the patient may be allowed to go about on crutches. (Mr. B. Hunt, p. 176.)

Fractures.—For a description and engraving of a new apparatus for the treatment of fractures, invented by Mr. Winchester, see page 419.

Hare-Lip.—The best time for performing this operation is between the tenth and twelfth month, the lips have then acquired a certain amount of thickness, a greater length for the application of sutures, an increased activity of circulation, and a consistency of tissue, capable of a better resistance to the traction of threads and needles. When performed on children, some days or even some weeks old, failures have almost equalled successes. The needles must be inserted at least three lines from the incised border, and not re-

moved before the end of the third or fourth day. The insertion of the needles at a proper distance, and their retention for a sufficient period, constitute the chief elements of success. (M. Roux, p. 197.)

Take hold of the left border of the fissure with the forceps (figd. at p. 194), next transfix at the upper angle with a narrow sharp-pointed scalpel, and cut downwards, taking care to keep the knife close to the outer convex border of the forceps. The opposite side must be done in the same manner, using the knife with the left hand, if possible. Common sewing needles, or pins having their heads enlarged with sealing-wax, will answer as well as any. The entrance of the pin should be about three-eighths of an inch from the cut border, and extend nearly or quite through the full thickness of the lip; if it passes entirely through, the wound is entirely closed and delivered from the irritation of the pins. (Dr. Alden March, p. 192.)

Hip-Joint, *Amputation at the.*—Of the several modes of operating, that by a large anterior flap is now considered the best, because the artery can be grasped with the flap, by an assistant, before the vessel is divided. The flap falls by its own weight into its proper place, purulent collections escape more readily, and the wound consists of one continuous surface. During the operation the nates of the patient must project over the edge of the table, and the thigh must be slightly flexed on the abdomen; then take a knife fourteen or sixteen inches long, and transfix the limb to form the anterior flap, by making the knife enter about two inches below the anterior superior spine of the ilium, carrying it beneath the vessels to emerge immediately above the tuberosity of the ischium. The limb must now be forcibly abducted and everted, and the capsule opened, when the head of the femur will start out of the acetabulum. The remainder of the capsule is then cut, and the posterior flap made by carrying the knife downwards and backwards. A good deal depends upon the assistant slipping his fingers under the anterior flap as it is being formed, and compressing the femoral. (Mr. T. Tatum, p. 136.)

Hysterical Affection of.—The pain is more severe than in chronic inflammation. Pressure produces greater pain when slight than when firm, and is more general than when there is inflammation. It is most relieved by a belladonna plaster round the joint, and general tonics, such as quinine, iron combined with hyoscyamus, or valerian and camphor. (Mr. W. Coulson, p. 158.)

Humerus, *Dislocations of.*—In whatever direction extension is made, whether downwards and outwards, directly outwards or upwards, you must fix the scapula, not by the heel in the axilla, but by the direct application of the counter force against the acromion process. (Dr. F. H. Hamilton, p. 160.)

KNEE-JOINT, *Chronic Inflammation of.*—Absolute rest must be combined with compression of the limb, not of the joint merely, but it should extend over a considerable portion of the limb; this will diminish the flow of blood, promote the absorption of effused fluids, and prevent the organization of accidental products. Various means are employed for this purpose—in mild cases, strips of plaster and a bandage would do, or stiff leather with small spiral wires, secured by a lace. In cases of longer standing, gutta percha splints may be applied, or a broad leather splint placed on each side of the limb, (this is made of stiff cow-hide, softened in warm vinegar and moulded on the limb, where it is allowed to dry.) Perhaps the best is plaster strips and and a flannel bandage, which should extend from the foot to the thigh; the limb must also be rendered immovable by splints, which should extend down to the foot, so as to prevent rotation. Counter irritation must rank next to these. Sir B. Brodie recommends an iodine liniment, composed of one drachm of iodine in one ounce of alcohol; or an acid liniment, composed of one drachm and a half of sulphuric acid, half an ounce of spirits of turpentine, and one ounce and a half of olive oil. Blisters act more efficaciously, especially when the disease is chiefly confined to the synovial membrane; they should be applied just above the joint and repeated frequently; they should not be kept open. Tartar emetic ointment should never be used for weakly or scrofulous children; croton-oil liniment is better, but the tincture of iodine is best. With regard to general treatment the three principal remedies are mercury, iodine, and cod-liver oil. Mercury, in cases of synovitis, where the inflammatory symptoms are rather active; iodine in chronic cases, where no active symptoms are present; where the joint is much swollen and the swelling firm, three to five grains of iodide of potassium may be given twice a day, and must be continued for a considerable time to produce any effect. Cod-liver oil is to be preferred in all scrofulous cases, and like iodine, should be administered for many months together. The syrup of the iodide of iron is an excellent preparation. When may passive motion be commenced? This is a very important question, and the safest answer we can give is this: Do not commence so long as movement of the joint occasions pain; if the contraction of the muscles is great it may be overcome by dividing the tendons, and applying M'Intyre's splint with a screw. (Mr. Wm. Coulson, p. 145.)

Excision of the.—Having turned back the flap containing the patella, apply the saw carefully and divide the required amount fromthe femur and tibia, without disturbing the soft parts by the needless introduction of a spatula; remove both ends together, first raising the separated extremity of the femur and dissecting from above downwards. By thus keeping the articular extremities in connection, their dissection from the popliteal vessels is rendered safer and easier, time is saved, and the operator can have the upper soft parts

depressed by an assistant when the continuity of the vessels is unimportant, whilst he is enabled himself to raise the back part of the joint from the more perilous vicinity of the vessels inferiorly. (Mr. O. Pemberton, p. 139.)

Lower Jaw, *Dislocation of.*—The surgeon will obtain a great advantage in position, if, instead of standing before the patient, he stands behind. The head placed against his chest can be pushed forward at the time he is pushing the jaw downwards, and backwards, with the thumbs in the mouth and the fingers under the bone in front. By standing behind the patient the head is more secure and fixed; he can also assist his manipulations by pushing forwards with the chest, and if necessary he can employ much more force than when standing in front. (Mr. W. Colles, p. 175.)

Old Contractions and Anchylosis.—Place the patient under chloroform to relax the muscles, then forcibly bend or extend the limb, it will most likely crack, as the ligamentous structures and adhesions are broken through, but there is no danger. The limb must then be put in a splint, kept quiet, and evaporating lotion applied. Generally this plan suffices, though in some very obstinate cases it may be necessary to divide the hamstring tendons, before the limb can be straightened. (Mr. J. Erichsen, p. 181.)

Sprains.—The efficient employment of cold, either by ice or irrigation, is far preferable to any other application for diminishing both their duration and severity. (Mr. E. Cock, p. 183.)

Tarsus, *Excision of the.*—When the calcaneum and astragalus are not diseased Chopart's operation is the best; if these two bones are very much diseased, then Syme's; if the calcaneum be sound, then Peregoff's; or the calcaneum, astragalus, scaphoid, and cuboid, may any or all of them be removed, if the disease is confined to the tarsus, and the foot saved, by Mr. Teale's operation. In Peregoff's operation the calcaneum has to be cut through with a saw. The chain-saw has been generally used, but Mr. Simon thinks the "Dublin saw" much preferable, and does away with the objections usually urged against the chain-saw. In Peregoff's operation as performed by Mr. Simon, first make the usual transverse incision across the sole of the foot from the external malleolus to the opposite point on the inner malleolus; next cut rapidly across the instep meeting the ends of the former incision; then disarticulate the astragalus and cut through the end of the calcaneum. (Mr. J. Simon, p. 142.)

VENEREAL AFFECTIONS.

Chronic Gonorrhœa.—One scruple of tannin dissolved in four ounces of water, with the addition of one ounce of gum arabic, forms a good mixture, and may also be used as an injection. (Dr. Berthold, p. 405.)

Syphilitic Ulceration of the Tongue.—You will find a saturated solution of the bicyanide of mercury, painted over the abraded surface more useful than anything else you can apply; taking care that the patient does not swallow any quantity of it. (Mr. Wormald, p. 248.)

AFFECTIONS OF THE EYE AND EAR.

Atropia.—A good way of applying this is the following, as it saves much time: Make a solution of gutta percha in chloroform. In this dissolve the required quantity of atropia, and paint the eyelid over with it by means of a brush. In a few minutes the effect will be seen on the pupil. (Dr. Fleming, *Dub. Hosp. Gazette*, June 15, 1855, p. 152.)

Cataract, *Catoptric Test for.*—The catoptric examination of the eye affords the most unerring test. In the early stages, the brilliancy and distinctness of the inverted image are diminished, and long before the cataract is mature, the inverted image is obliterated. In capsulo-lenticular cataract, a very slight degree of opacity of the capsule suffices to destroy its function of reflection. (Dr. I. Hays, p. 280.)

Granular Conjunctiva.—Improve the patient's general health by good diet and pure air. An issue in the temple, kept open by a single pea, is often very serviceable. Tincture of iodine painted on the skin of the lids is also very useful. Acetate of lead in fine powder, dusted over the everted lid, although painful at the time, gives decided relief. (Mr. J. Dixon, p. 279.)

Nitrate of Silver Stains.—In browning of the conjunctiva from nitrate of silver, which is permanent unless removed by remedies, apply freely and repeatedly a solution of iodide of potassium, (gr. viij. ad ℥j.) (Mr. G. Crichett, p. 287.)

Purulent Ophthalmia.—Give a brisk purgative at the very onset, afterwards either bark or ammonia, or quinine, and hyoscyamus if the patient be restless. Pure air must, if possible, be obtained, and all confinement avoided; meat, wine, and beer occasionally. As a local application, use a solution of nitrate of silver, (four grains to the ounce,) three times a day. In gonorrhœal ophthalmia, when rapid ulceration is beginning at the margin of the cornea, apply the solid nitrate of silver. In rapid ulceration and sloughing some have recommended general bleeding and salivation as a means of averting these morbid changes, but why should those principles guide us when the eye is affected, which we would not apply to any other part of the body? (Mr. J. Dixon, p. 273.)

Give mercury at the onset just to touch the gums; when ulceration has set in it must be given more sparingly; the solution of

nitrate of silver (eight grains to one ounce) must be applied every two, four, or six hours, according to the intensity of the inflammation, &c. The weak solution of nitrate of silver is far more useful than a strong solution. When the inflammation runs high, leeches may be repeatedly applied as long as the preservation of sight is possible; or you may adopt Tyrell's mode of scarification, though Mr. Dixon, of Moorfields Hospital, entirely repudiates these radiating incisions of the conjunctiva. Throughout the course the eyes ought to be continually sluiced with warm poppy fomentations, containing one or two drachms of alum in the pint. (Mr. J. F. France, p. 270.)

Otorrhœa.—First carefully clean the passage by gently syringing, then take a small piece of dry cotton wool, introduce it with the aid of a speculum, and adjust it by gently pressing down every part of it upon the surface from which the discharge proceeds; this done, every movement of the jaw must be restricted as much as possible, to prevent detachment. In twenty-four hours it must be removed and another dressing of the cotton applied in the same manner. (Mr. J. Yearsley, p. 299.)

Strabismus.—The disease is rather relative than positive, therefore before you operate, you must test the relative power of vision in the two eyes, and select that one for operation which is habitually inverted. (Mr. G. Critchett, p. 288.)

Operation for.—Under the influence of chloroform, the muscle must be divided sub-conjunctivally, in the following manner: Fix the eyelids open with a spring speculum, seize the conjunctiva, and make a small opening through it and the sub-conjunctival fascia with a pair of blunt-pointed scissors, at the lower border of the internal rectus, so as clearly to expose the sclerotic; then pass the strabismus blunt hook through the opening beneath the muscle, and divide the tendon by a succession of small cuts with the scissors between the hook and the insertion of the muscle into the sclerotic. If the tendon is broad you may make a counter opening at the upper border of the muscle, and divide in the same manner. The advantages of this plan are great; there is no inflammation, suppuration, or granulations; the caruncle does not shrink into a deep fossa as is so common, and eversion never occurs. (Mr. G. Critchett, p. 292.)

Eversion after the Operation for.—Place the patient under chloroform, and expose the globe by means of the wire speculum, and with a pair of scissors carefully dissect off the parts covering the sclerotic on the inner part of the globe, commencing about two lines from the inner border of the cornea, and extending upwards and downwards, and then inwards. You must now divide the external rectus, then draw the flap which has been raised firmly forwards, and pass a very fine silk suture through it near the inner cornea; it must then be passed

through the conjunctiva left near the cornea, by first separating it from the sclerotic towards the cornea, and passing the needle twice through it, so that it may not tear loose. Two or three sutures may be passed through in this way, but before you draw them tightly, cut away the superfluous part of the flap, then tie them. The immediate effect of this proceeding is some inversion, but the parts unite to the globe in their new position, and the eye becomes situated in the centre. (Mr. G. Critchett, p. 296.)

Strumous Ophthalmia.—If of an "*inflammatory type*", the local symptoms are rapid and severe; the constitutional symptoms run high, and the treatment must be by salines, antimonials, mercurials, purgatives, and the warm bath, which is peculiarly useful. If of an "*irritable type*," the mucous membranes are congested and disordered, the secretions vitiated, the bowels irritated, and there is a general outpouring from the mucous surfaces. You must remove all causes of irritation, improve the secretions by a mild mercurial and an alkali, attend carefully to the diet, give "stale bread and butter, milk and water, and a little meat once a day"; and if the irritation of the mucous membrane continues in spite of this, the utmost benefit will be found from Battley's solution, a minim for each year, once or twice a day. If of an "*asthenic type*," which is common among the poor, there is emaciation and pallor, with a weak and rapid pulse, requiring support, a *tonic* treatment is found to answer best; you must try to develope power in the system: if there is any periodicity of the symptoms quinine is a specific, when the fibre is lax and flabby steel is indicated. The combined salt of iron and quinine is a very convenient form, at the same time a liberal diet, with stimulants, must be allowed, and if possible sea air. Where this condition is complicated with much mucous and cutaneous irritation, arsenic is very useful, given three times a day, immediately after meals; but it must not be continued at any one time for longer than a fortnight or three weeks; but of all constitutional means removal to the sea air is the most important, and will cure when all else fails. As a local stimulant you may apply the solid nitrate of silver, moistened, and brushed lightly over the lids, or the tincture of iodine, repeating them every four-and-twenty hours for a few days. This method is peculiarly applicable to those cases in which vascularity and diseased action are slight, and photophobia is the prominent and principal symptom. The tincture of iodine is preferable to the nitrate of silver, as it causes less pain, and is equally efficacious. Solutions of nitrate of silver and other stimulants applied to the conjunctival surface are often decidedly injurious. When irritability is a prominent symptom, and the disease limited to the conjunctiva, local sedatives are very useful, and the best is the vin. opii dropped into the eye two or three times a day. (Mr. G. Critchett, p. 274.)

MIDWIFERY AND DISEASES OF WOMEN.

Chapped Nipples.—Apply the tincture of benzoin with a pencil. After the first application it will give relief and need not be washed off before the infant sucks. (M. Bourdel, p. 340.)

Dysmenorrhœa.—When this is independent of organic lesions and occurs in females of a nervous temperament, the following pills seldom fail to give relief: ℞. Ext. belladon. gr. viij.; camphori, ʒj.; quinæ sulph., ℈ij. M. ft. pil. xxx. sum. unam secundâ horâ. Where a tonic is not particularly indicated the following is equally efficacious: ℞. Ext. belladon. gr. viij.; pulv. ipecac. gr. xv.; zinci sulph., ʒss. M. ft. pilulæ triginti. (Dr. H. Green, p. 385.)

Leucorrhœa.—When occurring in anemic and nervous females the following pills are highly recommended: ℞. Ext. hyoscyam., ʒj.; argenti nitrat. gr. x.; pulv. cantharidis, gr. xij.; quinæ sulph. ℈ij. Ft. pil. xl. sum. unam mane et nocte. (Dr. H. Green, p. 386.)

Menorrhagia.—A continued use of tannin for two or three months in increasing doses is of great utility in menorrhagia, when not from organic mischief. It may be given in the form of pills, one to five grains, three or four times a day. (Dr. Berthold, p. 405.)

Pendulous Abdomen.—Very often from flatulence and intestinal torpidity, ("fat, fæces, or flatus"). The abdominal bandage tightly applied will soon dispel all suspicions, either of pregnancy or of ovarian disease, which might previously have been entertained. (Dr. West, p. 336.)

Premature Labour, *Induction of.*—To give the child the best chance of surviving, instead of rupturing the membranes, you must separate them from their connection in the vicinity of the os. Various plans have been devised for this purpose; but perhaps Dr. Weir's instrument, which combines the uterine introduction of a female catheter, with the injection of tepid water, is the best. It consists of a large flattened female catheter, to which can be attached a common injecting syringe. In using it the tube is first cautiously introduced within the os for about three inches, and then by means of the syringe a quart of tepid water is injected so as to act by slowly separating the membranes. A sponge tent should now be introduced within the os, and the injection may be repeated, at intervals of two or three hours until successful. (Dr. A. Keiller, p. 319.)

Suckling, *Impairment of Vision during.*—This affection arises from the drain there is upon the system; therefore, if severe, the child should be immediately weaned, if slight, it should not be put to the breast more than twice in the twenty-four hours. The anæmic condition of the patient naturally indicates the employment of a stimulating plan of treatment. You must give iron in some form, combined with ammonia, which is the most generally useful of all

stimulating medicines; quinine also may be necessary. If the patient does not improve try mercury, but you must give it very cautiously in these cases. Leeches or blisters should never be applied; you must increase the quantity and improve the quality of the blood. (Dr. R. Taylor, p. 329.)

Turning.—In cases of partial deformity of the brim, firm ossification, or large size of the child's head, where the natural powers are insufficient to complete the labour, instead of applying the long forceps, or having recourse to craniotomy, if you turn you will often be successful. Opening the head, and destruction of the child, will be seldom required, if the profession will adopt the practice now recommended. (Mr. D. Morris, p. 303.)

Urethro-Vaginal Fistula.—In cases of this kind, when the usual modes of treatment fail, the galvanic cautery may be very useful; it possesses many advantages over the ordinary red-hot irons, and can be very readily applied. An ordinary battery is placed on a chair at the side of the bed; the two wires are then arranged, and when the circle is completed, the coil or bead of platinum at the end of the wire will be of a white heat. The speculum being introduced, the edges of the fistula must be touched with the little pea of fire. It will not produce the least pain, which is the advantage of employing a white heat. (Mr. J. Paget, p. 334.)

Uterine Contractions.—Uva ursi may be employed in similar cases as the ergot of rye; it produces vigorous pains, but not such constant contractions as the ergot. (Mr. Harris, p. 335.)

Uterine Hemorrhage.—When threatened abortion is from a debilitated condition of the uterus, which, in its relaxed condition, opens the os, small doses of ergot act as a tonic and close the bleeding orifices of the vessels. If the patient be near the full time and delivery cannot be prevented, whether a case of placenta previa or not, rupture the membranes at one side, and give a good dose of ergot, so as to force the presenting part of the child firmly down upon the bleeding surface, and thus to dam up the stream; if this be not successful, deliver, if you can pass the hand; but if you cannot without much force, plug, until such time as you can deliver.

In women peculiarly liable to flooding, as soon as the child is born, be careful not to interfere unnecessarily during delivery. *Imitate nature*, or rather, *let nature alone*. When the head is expelled don't seize upon it and pull for your life, like a madman, but wait patiently, not only until nature has expelled the shoulders, but the hips also, for the body and legs of the child will stimulate the uterus to action as effectually as the hand of the accoucheur, and thus prevent flooding. But some may say, supposing the head is expelled and the pains cease, would you not employ traction

then? No! certainly not! you must not lend so much as the strength of a finger towards completing the delivery, but "*compel the uterus to do its own work.*" Besides being careful not to interfere in these cases, as soon as the head presses upon the perineum, give a full dose of ergot as a precaution against flooding, and repeat if necessary.

In cases of abortion, if the flow of blood be great, give large and repeated doses of ergot, so that the presenting part may be forced down, to act as an internal plug. In addition to this, it may be advisable to employ the plug, pushing a piece of alum into the vagina before the plug.

After the child is delivered, the first aim is to secure uterine contractions, it is worse than useless to deliver the placenta if this is not effected; it must be excited by ergot, firmly grasping the uterus, abdominal frictions, ice, the cold and hot douche alternately; if these means are not sufficient, introduce the hand and remove the placenta. In cases of abortion where the placenta is retained, the general treatment is to trust to time; if there is hemorrhage, plug and give ergot; but there is a great deal of uncertainty about this. The placenta should be removed if possible; some recommend hooking it down with one finger, but this cannot always be done; in such cases perhaps a pair of polypus forceps would be best to seize the placenta, twist it round and round again so as to detach it and bring it away. After the placenta is expelled there may be hemorrhage from irregular contraction, loss of power and nervous energy, or from some mechanical impediment to contraction, as a clot of blood. In all these cases you must introduce the hand, and when it is contracted keep it so by external pressure and ergot.

In cases of severe flooding, don't apply the bandage, it is in the way, and prevents more certain manipulations; after all danger has passed, it may be applied for support to the abdomen. (Dr. A. K. Gardner, p. 308.)

Generally the more powerfully the uterus contracts after delivery, the less the danger of flooding; not so, however, in all cases; if a portion of the placenta, a fold of the fœtal membranes, or a quantity of coagulated blood, be retained in its cavity, it may be adherent to the internal surface, so that no efforts of the uterus can dislodge it; the more fluid parts may be squeezed away, but the tougher particles remain, and bleeding still go on so as to endanger the life of the patient. By the introduction of the hand, and the withdrawal of the coagula, the agonizing pains and the further loss of blood are at once put a stop to, and instantaneous ease and immediate safety secured. (Dr. F. H. Ramsbotham, p. 306.)

MISCELLANEA.

Anodynes.—In all forms of chronic disease attended with acute pain, where opium is contraindicated, the following combination may be given with advantage:—℞. Ext. hyoscy. gr. xv.; ext. stramonii gr. iv.; ext. humuli ʒi.; morph. sulph. gr. iss. M. Divide in pil. xxx. (Dr. H. Green, p. 386.)

The Ecraseur.—This is a new surgical instrument devised by M. Chassaignac, of Paris, for the removal of pedunculated tumours without the inconvenience of ligature, or the hazards of hemorrhage. The part to be removed is embraced by a loop of chain with which the section is made, the two extremities enter the tube of the instrument, which is placed with the point where the division is to finish, the chain is then drawn through by a lever at the other extremity of the tube, so that the operation may be completed at any expedient time. In the case of *hemorrhoids* they must first be surrounded at the base by ligature, then the loop of chain is thrown over, and by gradually tightening, at intervals of thirty or sixty minutes, the part is removed without loss of blood, or any of the grave accidents which sometimes occur when treated by the common methods. Polypi of the rectum and fistula in ano, &c., have been successfully treated in this manner. (Mr. D. P. Holton, p. 380.)

Escharotic.—The combination of nitric acid and sulphur, is much superior to nitric acid alone: it gives less pain, acts longer, and produces more eschar. The strongest nitric acid must be mixed with sublimed sulphur until of a sufficient consistence to form a paste. When applied it does not run like the chloride of zinc, &c.; but it will be best to protect the surrounding parts by plaster (Mr. E. Cock, p. 267.)

Forcible Feeding.—Let the patient be laid horizontally on a bed, then pour the food by teaspoonfuls through the nostril; deglutition is provoked as soon as it reaches the pharynx. Physic can be given in this way to children who resist. In cases too of spasmodic closure of the jaws, it causes much less irritation than the introduction of the stomach pump. (Dr. Szigmondy, p. 414.)

Hydrocyanic Acid.—The strength of this important therapeutical agent is not always to be depended upon. It has therefore been proposed to substitute cyanide of potassium for it. ℞. Potassii cyanidi gr. xxij.; alcohol ʒxi. M. This preparation of cyanogen possesses the same medicinal properties, is of the same strength, and may be used in the same doses and under the same circumstances as hydrocyanic acid. (Dr. Horace Green, p. 384.)

Iodized Collodion, *External Use of.*—This will be found a very ready and efficacious way of applying iodine in very many forms of tumours. The quantity of iodine required is less than usual, as it

is prevented from evaporating by the pedicle of collodion. Ten or twenty grains to the ounce will be sufficient for all ordinary purposes, and often five grains to the ounce. It also produces a degree of pressure which, in some cases, is of importance. Other agents, as the alkaloids, soluble in æther, may be applied locally through its agency, and soon produce their specific action. (Dr. Fleming,—*Dublin Hospital Gazette*, *June* 15, 1855, *p.* 151.)

Ligatures.—In cases of polypus, &c., the ligature sometimes breaks abruptly from the corrosive effects of the discharges. If the ligature be previously rendered waterproof by a solution of caoutchouc it answers beautifully and comes away as sound as when applied. (Dr Tyler Smith, *Lancet*, June 2, 1855, p. 561.)

Phosphate of Lime.—The following formula is recommended :—℞. Calcis phosph. ℥ij. ; calcis carbon. ℥i. ; sacch. lactis. ℥iij. M, ℥ss. bis ter in die. Lactate of iron may be substituted for the milk sugar of iron be required. (Dr. Kuchenmeister, p. 419.)

Turpentine Bath.—Shut the patient in a room into which turpentine vapour is introduced from without. This is highly spoken of in catarrhal affections and rheumatism. (Dr. Moreau, p. 103.)

PRACTICAL MEDICINE.

DISEASES AFFECTING THE SYSTEM GENERALLY.

Art. 1.—ON FEVER.

By Dr. E. A. Parkes, Professor of Clinical Medicine in University College, and Physician to University College Hospital.

[If the chemistry of fever has its difficulties and obscurities, the physics of fever are still more dark and unintelligible. The alterations in molecular movement, and in nervous currents, will be but dimly understood long after the chemical problems have been perfectly comprehended; and yet these are the most essential phenomena, to which the chemical changes are merely sequences. "Fever is a blood disease," but]

We can no longer rest satisfied with localizing fever even in the blood; true the blood is affected, but it is in common with all other parts of the body; its molecular currents undergo alterations, but so do those of all organs; perhaps everywhere in fever the nutritive changes are impaired, and perhaps every organ is both more rapidly changed than usual and is less perfectly repaired. Such is the harmony of the parts of the body that this is indeed inevitable; the rapid interchanges of the molecular circulation either in the blood or in organs, render it impossible that any disease shall remain isolated. As to the correct working of one organ, the correct working of all other organs is necessary. A disease of the blood as a thing separate and peculiar is evidently impossible; from that blood torrents of fluid pass in inconceivable rapidity into all organs, and as rapidly are again gathered up. What was solid is now fluid; what is now fluid is speedily to become, if not solid, yet a constituent of what we call a solid organ. Into that organ the altered fluid carries its own imperfect constitution, and injures at once the function of the structure of which for the time it forms a part.

Yet the blood is affected in fever, in fact, must be affected in fever, and the problems which are now presented to scientific medicine are these: What are the exact changes of the blood and organs in pyrexia, and at what period of the disease do these changes occur! In my last lecture, I alluded to the very small number of facts which have

as yet been acquired on the constitution of the blood and organs, although there is no reason to doubt that, as our means of investigation enlarge, the question will eventually receive a full reply. I leave this subject, then, to turn to the second problem, viz., As to the period when the blood becomes affected in fever.

A favourite opinion refers the origin of fever to primary disease of the blood.

In almost all the specific diseases, in small-pox, scarlatina, measles, typhus, typhoid fever, relapsing fever, and yellow fever, a fever-making cause appears to enter the blood, at least, it can be proved to enter in several cases, and a strong analogical argument can be proved of its entrance into the rest. The fever-making agent also reproduces itself in the blood, or in some organs. This can accrue only through a direct chemical process, of some sort. In the case of other fevers, also material agents, septic substances can be traced into the blood, as in the fever following parturition, wounds, operations, and purulent formations. In many inflammations, &c., in whatever way they originate, some previous diseased state of the blood can often be proved, or the inflamed part produces products which are manifestly absorbed into the circulation. In fact, this part of the argument scarcely needs discussion, as it is generally admitted that, in almost every case, if not in all, the first action of the febrile cause is on the blood. At a later period, the blood may be supposed to be again secondarily contaminated by the stream of abnormal matters which flow from the organs into it under the rapid disintegration of almost all tissues in pyrexia, or of some special tissues in local inflammation. Then, as already argued in a former lecture, it would appear that, if not got rid of by the excretory organs, the thus contaminated blood produces secondary inflammation, or lights up a fresh pyrexia.

But is this a full expression of the sequence of phenomena? Does the blood, diseased from the poison of small-pox, and, therefore, supplying to the various organs a fluid altered, it may be, in essential conditions, throw the molecular currents, and the interstitial metamorphoses of these organs, into disorder, and thus produce the wide disturbances which characterize the developed fever?

It may be so, and future chemistry may point out exactly how the variolous poison acts thus on the blood, and through the blood on other parts. But it seems probable that this does not express all the phenomena, but that, between the primary alteration in the blood and the altered and increased metamorphosis of the so-called solid tissues, there accrues another essential stage,—a connecting bridge, an intermediate and necessary link, which consists in a profound alteration in the action of some part of the nervous system.

And this brings me to the concluding paragraph of the definition of fever, which I have taken from the masterly pages of Virchow, and which I shall beg leave once more to note.

"Fever'" says Virchow, "consists essentially in elevation of the

temperature, which must arise from increased tissue-change, and have its immediate cause in changes of the nervous system."

Why "must have"? Is it so certain that the very basis of the febrile state is to be located in the nerves, and are all the phenomena of fever to be comprehended in the concise, though vague phrase, of "perverted elimination"?

We enter here upon a very different kind of argument from that to which I have hitherto referred. If many things are obscure in the chemistry of the excretions or of the blood, we yet have a definite, and up to a certain point, an accurate mode of investigation. Chemical analysis isolates the elements of the problem, and the balance at every step corrects our inferences, or confirms our deductions. But in the case of the nervous system there are no such certain tests, there is no such infallible corrective. The mode of investigation is vague, uncertain, unsatisfactory.

The tests we have to employ are the symptoms of the diseased body, and the only corrective is our physiological knowledge of the healthy working of the nerves. But the meaning of symptoms is often hard to understand, and the physiology of the nerves is yet almost a virgin soil, bearing often only enigmatical fruit.

The time will come when the alterations in the nerves may be tested during life, and be recognized after death, by the electrical multiplicator; it may be, possibly by muco-chemistry. But till that time arrives it becomes us to advance everything with caution, and to regard even our apparently most certain conclusions as only provisional.

And yet, at the same time, if we are ever thoroughly to comprehend disease, the condition of the nervous system must be understood. The part it plays in every malady is no insignificant one. It modifies, controls, intensifies, cures, and kills. The blood itself does not so quickly carry to other structures the impression of the suffering part, and the old doctrine of sympathies has its side of truth. We must then search, if we are ever to advance, and conjecture, if certainty is ever to be attained.

The arguments which can be now brought forward to prove the influence of the nerves in febrile affections impress different minds with different degrees of force. Altogether, however, it would seem, if we may judge both from the older and recent writers, that the essential participation of the nervous system is now doubted by few, and the chief subject of debate is the extent and manner of this participation. Few of the masters of our profession have left the subject untouched, and it would be curious and interesting to review the various opinions and hypotheses which have been advanced. This cannot, however, now be done, and I must proceed to a very brief statement of the various reasons which seem to show at any rate that the nerves are greatly affected, and perhaps to bear out Virchow's statement that this affection is the cause of the other more obvious symptoms.

The most striking phenomena of fever are the augmented metamorphosis and the preternatural heat. Now, over normal metamorphosis and normal heat, the nervous system seems to rule paramount. The influence of the nerves on heat, as developed in muscular action, has been shown by Helmholtz; their regulating power over secretion, has been proved by Ludwig; their control over nutritive processes has, if the experiments of Axmann are to be trusted, been at last experimentally established. At the very first step we have at once this question, Is it likely that the system which plays so great a part in normal heat, secretion, and nutrition is inoperative and inert when all these processes are deranged?

To this question a partial answer is given at once by the beautiful experiment of Bernard, which has conclusively shown that artificial disease of the nerves at any rate will alter both tissue-change and normal heat. It would appear as if the tissues at once began to suffer oxidation; as if, in fact, it were the nervous power which had previously prevented from destruction. The older and recent experiments in section of the nerves show the same fact. Thus, when, by section or extirpation, the controlling effect of the sympathetic in the neck is taken away, there occur at once hyperæmia and local development of heat, far exceeding the heat of the blood, in the parts not deprived of nervous influence. By the side of these physiological arguments we can place others derived from the early symptoms of fever, which seem inexplicable unless the participation of the nerves is admitted; and to these again we can add more or less cogent evidence afforded during the course and at the termination of these diseases.

Among the very earliest symptoms of febrile affections are the remarkable depression, apathy, exhaustion, and debility which were much and justly insisted on by Cullen. It is indeed possible that these may be the effects of a general nutritive failure, in which the nervous system merely participates in an equal, but in no higher a degree, than other parts. If there were no other evidence of nervous affection, this argument might be a good one, although the nervous symptoms are certainly unusually prominent; but these acquire significance from being placed in juxtaposition with others.

Another very early symptom of fever is one which seems to indicate most decidedly a more than simple co-affection of the nervous system with other parts. I allude, of course, to the shiverings, the contraction of the superficial vessels, and of the skin. At this time, if not before, the tissue metamorphosis is most decidedly augmenting, for the heat of the blood is rising, as shown by these observations. We have at this time the remarkable subjective sensation of cold, and the rigors, which stand in such striking contrast to the augmenting heat. The explanation of this has been already alluded to, as being given probably by the nerves of the skin and cutaneous vessels, which transmit to the censorium the condition of the peripheral parts. If this

be the case, we have the anomaly, pointed out by some German writer—Henle, I think—of the impression of cold being transmitted from distant nerves along the trunks of nerves, which, lying deeply, and being fed by vessels which are not contracted, must be hotter than usual, although they thus transmit the sensation of cold.

Another very early symptom of fever finds its readiest, perhaps its only, explanation in some condition of the nerves. I refer to the increased rapidity of the heart's action, and to the relaxation of the vessels which soon follows the stage of contraction just referred to, or occurs without it. The increased cardiac action occurring at too early a period to permit us to refer it to altered nutrition of the fibres, or to action of a depraved blood in the endocardium, and reflex action, the hypothesis which refers it to a diseased condition of the vagus is much more probable than either of these propositions, for the vagus is the nerve which regulates the cardiac movements. The experiment of Weber seems to strengthen this supposition, for section of the vagus quickens at once the action of the heart, and the transmission of electrical currents, the nearest approach to the normal currents which we possess, at once lessens again the action. Volkmann again finds that section of the vagus produces an increased lateral pressure in the vessels. Therefore two of the most striking phenomena of fever, the increased cardiac action, and the relaxation of the vessels can be artificially produced at will, by interfering with the nervous currents.

The affection of the vagus has appeared to some so certain, that it has been attempted to prove it to be the essential and proper disease, from which all other febrile symptoms arise. Thus the heart's action being quickened, and the vessels being relaxed, increased circulation, general hyperæmia and preternatural heat would seem to be the necessary consequences. But this opinion does not bear examination; for there are cases of fever without quickened circulation, and when there is quickened circulation, it bears no relation whatever to the abnormal heat. On this point much evidence has been published, and I have myself accumulated proof upon proof, which I think it unnecessary to adduce here, that the quickened circulation in various febrile diseases, and the dilatation of the vascular system, as far as this can be judged of by the pulse, are entirely unconnected with, and independent of, febrile heat. And a physiological argument seems to settle the question that, besides hyperæmia, there must be increased tissue-change to account for the heat; for in Bernard's experiment, the heat of the side of the heart which was deprived of nervous influence was greater than that of the blood; and though there was enormous hyperæmia, this, by itself, could never raise the heat above the temperature of the blood at large.

The occasional absence of this increased cardiac action shows that, when it does occur, it is not owing to diseased blood, for this must exist in all cases; and this is an argument the more for locating the cause in the vagus.

Another very early symptom of fever seems to find its most reasonable explanation in implication of the vagi. I refer to congestion of the lungs, which is so common in almost all febrile diseases as to oblige us rather to connect it with the general febrile state than with any specific disease. It has been lately shown by Woilley, that, at the commencement of all acute diseases, in typhoid and rheumatic fever, in ague in some cases, in variola, in scarlatina, measles, and erysipelas, in acute inflammations of the heart, congestion of the lungs is so common, that it is discovered in 80·5 per cent., and is announced by unequivocal physical signs.

The pulmonary congestion of a later period in most of these diseases in various degrees is a fact which has been long known. To what, now, is this pulmonary congestion to be referred? To altered blood refusing to pass through the pulmonary capillaries, to perverted contraction of those capillaries, or to some alteration in the circulation consequent upon altered innovation? It must be confessed that we have few facts to guide us; but when we remember that section of the vagi produces (of course in a still higher degree) the same condition of congestion and œdema of the lungs, and that there is reason to believe, from the condition of the heart, that the regulating nervous currents of the vagi are altered, it seems most reasonable to refer the pulmonary congestion to the same cause as the augmented cardiac action.

It may be possible, as observed by Virchow, to trace the effect of alteration of the pneumogastrics, or of the nerves connected with them, still further, even to the digestive organs, and to ascribe some of the early symptoms of anorexia and nausea to this cause, but it is unnecessary to push this argument further.

Pursuing now the fever into its developed period, we have a remarkable and very frequent phenomenon, viz., the evident periodicity which attends many cases, which can be accounted for only by acknowledging not merely that the nerves are implicated, but that this affection is of that kind which subordinates and controls the other symptoms of the case. The symptoms in ague, and the wonderful periodicity which was shown by the late Dr. Graves to govern even the remote outbreaks of attacks are the most striking examples; but the course of all the febrile affections and even of the acute inflammations indicate the same thing.

I shall not venture, and do not further allude here to the subject of critical days; for it would require more time than could be given me to do justice to it; but I must remark that the experiments of Traube, and others, prove that this ancient doctrine must not be thrown aside, as an hypothesis born from the old mystery of numbers, or as a mere dream springing from the wild imagination of the East, and imported into Greece. There is much, though it is not easy to say how much, truth in critical days; and, if so, the nerves must surely play the principal part in their production.

Again, in the course of fevers, the secretions are very much altered in quantity, and possibly, though of this we know nothing, in quality. Now, the nervous system certainly guides and controls the flow of secretion.

Then, passing from the course to the end of fevers, we may observe that the occasional sudden termination in some cases, and the way in which some fevers, as ague, are readily cured by a few grains of medicine, which can scarcely be supposed to alter the constitution of the blood, but the action of which on the nerves is shown by other facts, are again arguments that, in these cases, the febrile symptoms are under nervous control.

I must allude here to one most enigmatical mode of termination of fever, which possibly may be connected with the nerves. It is well known that in most severe fevers there occur instances in which patients die in the early stage, from an unknown cause. It is usually said that the pyrexia itself kills them, independent, as it were, of the specific disease. In such cases, no sufficient anatomical condition is found to account for death. In fact, the various chemical products, which, acting on different tissues, constitute the anatomical signs of the specific fevers, are not formed: there is fatal small-pox, or scarlatina, without eruption, fatal typhus without a rash, fatal typhoid fever with very slight Reyerian deposit. How, then, do such patients die? It may be that there is some alteration in the blood, so profound as to render life impossible; and, in proof of this, it appears that purpuric spots, blebs filled with bloody serum from dissolved red particles, weeping of such red fluid from mucous surfaces, and such like evidence of a destroyed blood, are generally seen in these cases.

But, besides this, may it not be that in these cases there is profound nervous lesion also? There is extraordinary prostration, a galloping and early-failing pulse, and an excessively rapid respiration, to account for which there is only pulmonary congestion. The mind, it is true, may be perfectly clear in these cases; but that only proves that one special part of the nervous system is untouched.

Leaving, however, this doubtful point, the results of the argument in proof of the implication of the nerves may be thus summed up. These are: 1. The general physiological law that nerves regulate the metamorphosis of tissue and the production of heat, which are both altered in fevers; 2. Experiments on the sympathetic and the vagus, the results of which simulate, so to speak, or are identical with, the febrile phenomena; 3. Various symptoms which announce, accompany, or terminate fevers; 4. The effects of certain remedies.

Whether these various arguments will appear sufficient to any one will, I think, very much depend upon the weight which he attaches to the physiological and the experimental part of the argument. Those who are imbued with a sense of the constant and necessary action of the nerves on nutrition will find their opinions give strength to the otherwise comparatively weak arguments which are drawn from the symptoms and the course of fevers.

Against the view that the nerves are especially and essentially implicated we have the argument that no decided experimental proof has yet been given of abnormal innovation; but then, in the present state of physics and micro-chemistry, this argument is really worth little.

If there be perverted innervation as a necessary part of fever, in what does it consist?

Two opinions only need be noticed; one advanced some years ago by Henle, that there is irritation of the nerves, the other of more recent date, and founded upon recent experiments, that there is partial paralysis of the nerves, or rather of certain of the nerves.

In favour of this last opinion we have the following facts:—

Wherever, in experiments on nerves, the phenomena are like those of fever, viz., augmented circulation, relaxation of vessels, perverted nutrition, and abnormal heat, the state is one in which the nerve-currents are interrupted either by extirpation, section, ligature, or chemical destruction of the nerves. On the other hand, irritation of nerves by electrical currents produce phenomena different from those of fever. Thus the vagus is cut, the heart beats rapidly; when the cut vagus is irritated (so to speak) by galvanism the heart beats again slowly; when the sympathetic of the neck is cut the vessels of the side of the head enlarge, the part grows hot; when a galvanic stream is passed through the nerve, as in Dr. Waller's interesting experiment, the vessels contract, and the heat disappears.

Other experiments, as already said, lead us to infer that section of the sympathetic or of other nerves connected with nutrition is always followed by disintegration of tissue, and perhaps even by final death of the part.

Coupling these facts with the early symptoms of prostration and languor, we may conclude that the state of the nerves is one rather of exhaustion and paralysis, than of irritation and excitement.

We are now in a position to enumerate the various influences which seem to be active in fever, and by the combined effect of which its complex phenomena may be supposed to be produced.

First of all, we must place the entrance into the blood of a morbific agent, and the alteration of the blood, to a certain extent, under its influence. Perhaps this occurs under the incubative period, when often there is no rise of temperature, no fever, that is, and when no appreciable alteration of the general health can be discovered. The nature of the change in the blood is unknown.

Then, secondly, when the change in the blood has reached a certain point, the nervous system, or rather that part especially connected with nutrition and organic contractility begins to suffer changes in composition, which probably impede or destroy the normal molecular currents. When this occurs, the nervous symptoms of weakness, depression, rigors, and contraction of some parts and vessels, speedily followed by relaxation, mark the stage of invasion.

Thirdly, and simultaneously, various parts, especially the muscles, and probably some of the organs, deprived in greater or less degree of nervous influence, begin rapidly to disintegrate, and by their disintegration produce supernatural heat.

Fourthly. This metamorphosis is aided, in most cases, by the condition of the vagus, and vasi-motor nerves, which cause increased action of the heart and dilatation of the vessels.

Fifthly. The contamination of the blood already produced by the morbid agent, is increased by the check which the normal extra-vascular currents experience, by the pouring into the blood of the rapidly disintegrating tissues, and by the continued action of the morbid agent, which in almost all cases appears to act more rapidly and more powerfully in blood rendered impure in any way, either as shown by Dr. Carpenter by retention of excretions, absorption of septic substances, or, as in fever, by the too rapid metamorphosis of tissue.

Sixthly. The various organs suffer (apart altogether from specific changes), and must, one would think, produce increased deterioration of the blood. Thus the lungs are congested in so many cases that we can scarcely suppose proper aeration to go on; the liver would seem, from Frerichs' observations, to be, in some cases at any rate, in a most abnormal condition, and to produce compounds such as leucin, unknown in health—and the spleen in many fevers, if not in all, enlarges, (in persons of a certain age,) and is congested, possibly even to extravasation.

But to these complex conditions another must yet be added; food is almost entirely withdrawn, and the various alkaline and neutral salts, unless supplied in the form of medicines, no longer pass into the system. But as in the excretions these salts are continually passing out, and are not restored, there must at last in fevers be a most unusual disproportion between the organic and the inorganic constituents of the frame. The blood will show this the latest, for it seems to maintain its composition, as far as the salts are concerned, with great tenacity; and it probably takes from the organs the ingredients it loses by the excretions. The exact influence of this loss of salts is not certain. The blood seems certainly to become less alkaline, and it is by no means improbable that this may render oxidation less complete than it should be, and thus cause some of those instances of retention of effete materials to which I have formerly referred.

Thus the blood is contaminated by primary action of the agent, by the products of metamorphosis of tissue, by the loss of the salts, and by the altered action of organs; the nervous system is, therefore, day by day constantly more affected, and re-acts still more on metamorphosis, the heat increases, the heart's action still quickens, and the fever reaches its acme.

The various specific differences which mark the course of every

fever, are not, of course, dealt with by this hypothesis, which looks only to the general symptoms of pyrexia.

The fever having reached its highest point, and being there maintained for a greater or less number of days, according to the nature of the cause, and partly, also, according to the condition of the recipient, then declines, and reaches its termination.

Pyrexia is usually said to terminate by crisis and by lysis; in the former case, the temperature falls suddenly in a few hours, and usually with some abundant excretory discharge, in which possibly much of the water which has been retained is poured out; in the latter case, the fall of temperature is gradual from day to day, till the normal standard is raised. A third mode of termination is a mixture of these two modes, viz., a sudden fall in temperature to a certain point, and then a gradual decrease to the normal heat. In the termination by lysis, the decline may occupy many days. In the case even of simple febricula, I have known the thermometer to take seven days in falling gradually from 102° to 98°, sometimes it is longer even than this.

But, besides these three modes, it appears to me that there is a fourth mode of termination. This is seen, I think, most perfectly toward the end of long-continued fevers, such as typhoid, and consists in a somewhat irregular alternation of febrile and non-febrile periods, which is shown both by the temperature and the issue. Thus a typhoid patient, at the thirtieth day, may have a normal temperature, and may pass a normal amount of tolerably healthy urine; for the next day or two the temperature may again rise, and the urine decrease in quantity, and increase in pigment; then, for a day or two, a perfectly apyrectic state may come on, to be succeeded again, at an uncertain interval, by a febrile condition; gradually the non-febrile periods lengthen, and the febrile become shorter and less marked.

At length the fever terminates, and then commences the period of convalescence and renewed nutrition, and the body at once, according to the observations of Zimmermann, commences to gain weight. At this time the blood is poor in albumen and in red particles, and especially in the latter; it is frequently poor in salts, if these have not been supplied by the medicines. The rapidity of metamorphosis of organs falls below even the healthy standard; this is shown by the temperature,—which is often lower than normal, especially if the patients are kept for any time without food,—and by the urinary excretions; for, in spite of the greater supply of food, the urea, the uric acid, the colouring matter, the extractine, the sulphates and the phosphates, all fall below, not their febrile standard merely, but their healthy amount.

The different organs and tissues, in fact, are appropriating a greater amount of nutritive material (probably of oxygen as well as food) than they lose by disintegration, and the weight of the whole body is often augmented in an extraordinarily rapid degree. The normal

balance between formation and destruction of tissue is as much disturbed in this state as in the fever itself, only the condition is exactly the reverse. This state of increased assimilating power, on the parts of the tissues, may last far beyond the period usually considered as belonging to convalescence, and the weight of the patient may, indeed, exceed considerably that proper to him before his illness, and that to which he subsequently reverts.

I have already stated, that the diminished elimination during the period of convalescence, is often well marked in the urine. Although there are not, as far as I know, any observations on the point, it is probable that the elimination of carbonic acid by the lungs is also decreased, and that the rapid and unusual deposit of fat in the various parts of the body which frequently follows fevers of all kinds, is to be attributed to this.

If the increased tissue metamorphosis in the febrile period is to be referred to some change in the nerves, so also, is the diminished metamorphosis in the convalescent stage. In both conditions the nerves may be supposed to have lost their moderating and regulating power, although their state must be very different in the two cases. If there is paralysis in the one case, we must suppose there is some sort of irritation in the other, or the reverse. But such speculations in the absence of any real knowledge are of little use.

The diminished elimination during convalescence which I have referred to does not always occur; it is absent in slight cases; and the investigations on the urine are not sufficiently numerous to enable us to state that it is present even in all severe cases; but that it is a general rule in long-continued and severe cases cannot, I think, be doubted.

The treatment of pyrexia becomes much more comprehensible if we accept the doctrine of nervous paralysis. We then understand how measures which reduce the febrile heat, such as bloodletting, purgatives, &c., may, if carried to excess do harm, by exhausting the nerves still more, and how various remedies may do good by acting at once on the nerves.

The *treatment* of fever may be summed up as being a combination of measures *to reduce excessive heat, to ensure proper excretion,* and *to act on the semi-paralyzed nerves.*

The application of cold, as practised by Currie, and lately re-investigated by Traube and Armitage, has a great effect in bringing down the temperature of the body. It probably does so simply by abstracting heat; whether it delays metamorphosis is uncertain. In health the application of cold appears from Lehmann's experiments even to increase metamorphosis.

Bloodletting or hemorrhage often reduces the febrile heat greatly, and, if not carried to the point of exhausting the nerves, bloodletting in many fevers towards the early period, is decidedly useful. In typhoid fever I have seen intestinal hemorrhage reduce the temperature

several degrees, and when patients are not too weak, it has even appeared to do good. In typhus the paralysis of the nerves seems more marked than in typhoid, and bloodletting and similar measures seem less admissible.

Purgatives and emetics have, in less degree, the same effect as bloodletting. Artificial diarrhœa will reduce the temperature one or two degrees; the spontaneous diarrhœa of typhoid has the same effect; the temperature, however, soon rises again.

To insure proper excretion in fevers is a much more difficult thing than to reduce temperature. It is, perhaps, best performed by constantly supplying to the system a due supply of alkaline salts, which are not now given in the food. The chloride of sodium, we know from the experiments of Bischoff, aids the formation and the elimination of urea. Whether it has the same effect in fevers has yet to be determined. The alkaline salts of potash, and probably those of soda, do certainly aid the elimination of urea and sulphuric acid in some febrile cases, in pneumonia, rheumatism, variola, and typhoid fever. Perhaps they so act in all cases. The nitrate of potash seems also to aid elimination in some febrile cases, though it does not necessarily do so in health.

I have observed a singular fact in several febrile diseases, viz.: that, at the first employment of a saline remedy, such as nitrate of potash, which is not a natural constituent of the frame, or iodide of potassium, there is sometimes for a day or two a marked lessening of excretion, as if the presence of this foreign substance had interfered for the time with the chemical processes then going on; afterwards elimination increases, as if the system had accommodated itself, so to speak, to the remedy.

Purgatives probably act by removing from the blood some of those abnormal products which are formed in fevers. At any rate the great relief which follows their use, as well as the fall of temperature, seem to show this. As we know that urea passes off sometimes, both by the membrane of the stomach and of the intestines, it does not seem an unlikely conjecture, that the action of purgatives may aid this elimination in those febrile cases in which there is retention of this substance in the blood. In some febrile cases, as in typhoid, the use of purgatives is of course rendered impossible, on account of the special condition of the iliac mucous membrane. The whole treatment of fever, is not, however, summed up in these two indications, to reduce heat and to secure elimination. Many fevers, indeed will run their course regularly and excellently under such treatment; but these are cases in which the nervous implication is not of grave character.

One of the great objects of therapeutics at the present time is to find substances which may act on the nerves, and restore them in some way to their normal action.

Thus, the administration of food, and of stimulants, must act,

among other ways, by giving nutriment and strength to the nerves. Often it is perfectly good practice to stimulate with wine, and to assist elimination by purgatives, at the same time. That alcohol acts in part upon the nerves seems proved by the way in which it will reduce the frequent pulse, and of the respirations in various specific fevers, and in some local inflammations. The influence of this powerful stimulant requires, however, to be carefully watched; for the overloading the blood with its products must lead to increased contamination.

Quinine has been largely employed in many fevers, and its action in ague, in which disease it seems to render the nerves proof, to a certain extent, against the cause, has excited great hopes of its utility in other fevers. The researches of Briquet have clearly proved that in very large doses (60 grains in twenty-four hours,) it will reduce the action of the heart in acute rheumatism, and in typhoid fever by twenty to thirty beats. This must decidedly be useful, since one of the accessory causes of the augmented metamorphosis must be removed; and to this effect is, perhaps, to be ascribed the good effects of quinine noted by Dr. Dundas in some febrile cases. But these large doses have apparently a disadvantage, as they produce the poisonous effects of quinine.

The influence of quinine on the febrile heat is not much marked; in large doses it lowers temperature by one or two degrees, but it afterwards augments again.

In small doses, such as are given in this country, (grs. iii. to v. every four or six hours,) for myself, I have not been able to see any effect produced on the heart or the temperature. In one case of rheumatic fever I examined the urine, and found that quinine in these doses caused no diminution of metamorphosis.

Digitalis, according to the experiments of Traube, produces the most marked effect on the temperature of any medicine, and its influence on the heart is well known. Whether or not it increases elimination in febrile cases, is even now not accurately determined, although for so many years it has been celebrated as a diuretic in chronic diseases.

Veratrine has been lately employed in various fevers, especially in acute rheumatism: it reduces the action of the heart, and apparently the febrile heat; but its poisonous properties are so powerful that it is not likely to come into general use.

The effect of ammonia is often very well marked in the latter stages of fever, when the heart's action is very rapid from apparently great paralysis of the vagus. Its effect on elimination is not well known.

Much attention has been lately directed to the powerful effects of coffee, and of tea, and of cocoa, especially of coffee, in lessening the elimination of urea. The late observations of Dr. Julius Lehmann have shown that coffee, in health, has two powerful actions; it

increases the nervous energy, and protracts the metamorphosis of tissue. He thinks there are antagonistic effects, but they may possibly be simply cause and effect. Lehmann only determined the urea and the phosphoric acid, which he found both diminished.

It would be very interesting to know if coffee has the same effect in the febrile body as in health.

I have made one experiment on the point, and I think none has yet been made known as having been performed by others. Although my observation is incomplete, I shall venture to give it.

In a case of typhoid fever, which was so far favourable for the remedy as, though perfectly well marked, there was no diarrhœa or sweating, coffee was administered. During twenty-four hours the patient took ℥vj. of infusion of colonial coffee (of course without sugar or milk.) The coffee contains 207·888 grains of solid matter; there were only traces of chlorine; there was 1·738 grains of phosphoric, and 1·055 grains of sulphuric acid in the whole quantity.

In the next twenty-four hours he took another ℥vj. of coffee, containing 197·328 grains of solids. In the third twenty-four hours, ℥vj. of coffee were given, which contained only 34·89 grains of solids.

Unfortunately, before the experiment could be commenced, the temperature was beginning to decline, and the urea, the sulphuric, and the phosphoric acids of the urine were gradually diminishing.

Thus, for three days during the height of the fever, about the 18th or 20th day, the urea amounted to 429 grains in each twenty-four hours; the sulphuric acid amounted 28·537 grains, and the phosphoric acid to 19·275 grains. On the following days, before the coffee was given, the fever was declining, the urea fell to 326·04 grains, viz., 103 grains less; the sulphuric acid fell to 23·34 grains, or 5 grains less; the phosphoric acid fell to 17·446, or two grains less.

The coffee was then given, the diet and all other circumstances being unaltered. During the three days it was taken, and on the following day over which its action may be presumed to extend, the urea averaged in each twenty-four hours 277·04 grains; the sulphuric acid averaged 16·502 grains, and the phosphoric acid amounted to 9·227 grains. It thus appears that the lessened amount of urea was not more during the use of coffee, than could be accounted for by the decline in the fever; but the fall in the sulphuric, and especially in the phosphoric acid, was extraordinary; deducting the grain of sulphuric acid added in the coffee, the amount of the acid was 15½ grains as against 28½ and 23½; the phosphoric acid did not exceed 8 grains as against 19 and 17.

After the coffee was left off the urea and sulphuric acid soon increased again; the phosphoric acid fell still more the next day (to 5·5 grains) and then increased again.

There appeared to be no modifying circumstances to interfere with the action of the coffee, and though the effect on the urea was not

certain, yet, as it increased again when the coffee was taken away, and as the sulphuric acid was so diminished, it is probable that metamorphosis was checked. The lessened phosphoric might depend on lessened amount of disintegration of the nervous tissue.

Certainly there seems good reason to try the effect of coffee in severe cases of fever with delirium and rapid wasting.

Since this lecture was delivered I have had the opportunity of trying it in a very severe and ultimately fatal case (from perforation). The urea did not appear to be diminished.—*Med. Times and Gazette, June* 2, *p.* 535, *and June* 9, 1855, *p.* 561.

2.—ON FEVER.

By Dr. Samuel Wilks.

[The researches of Dr. Parkes on this subject, and his investigations into the functions of the various organs during the febrile state, have been productive of very important facts. With respect to the state of respiration, Dr. Wilks says,]

My own observations (published elsewhere) showed that in all febrile diseases the number of respirations was increased, (care being taken always to exclude those instances where there was the slightest symptom of pulmonary complication or obstruction), and this increase was quite irrespective of the pulsations of the heart. For although the action of the heart and lungs is no doubt, to a certain extent, associated, and the amount of work done by one organ is a measure of that done by the other; as, for example, when each is increased during any violent exertion; yet this is by no means invariably the case. There are times, undoubtedly, when the blood, containing more effete matter than it does at others, requires for its purification an increased action of the lungs, and yet the number of cardiac contractions may be of the ordinary amount. I believe this occurs in fever, and accounts for the phenomena which are observed—the constant dissociated action of the heart and lungs. In looking over a large number of reports, I find, as a rule, that the respiration continued high as long as the fever lasted, while the pulse was often at the natural standard, or even below it.

Taking the ratio of the respirations to the pulse in health to be 1 to $5\frac{1}{2}$ or 6, *i.e.*, reckoning the former at 12-14 per minute, and the latter at 70, and then looking at continued fever, we find the average pulse in that disease to be 100, and the respiration 25-30 per minute, making the ratio 1 to 3, instead of 1 to 6. Often even during the course of fever the pulse may be descending while the respiration remains high. Thus, for example, a woman with typhus and a mulberry rash, and having no chest or abdominal symptoms, had

a pulse 116 and the respiration 36 in the minute; the former soon became 100 and the latter 32; the pulse then sank to 90, and afterwards still lower to 52, while the respiration had only reached 26; the skin was still hot and dry, and the pulse descended still farther to 42 while the respiration was 22. The respiration is here seen as much above the standard number of health as the pulse is below it. Perspiration broke out, and the patient convalesced, and at the same time the pulse rose and the respiration fell until each had reached its natural number. In all cases of fever the pulse does not descend so low, but constantly in typhus towards the height of the disorder the pulse may be at 70 while the respiration is, as a rule, double that of health. The same facts as above stated may be found in scarlatina, measles, and other febrile diseases, but as it may be objected that a congestion of the lungs in fever and the exanthemata may be sufficient to account for the phenomena, we may take rheumatism, and selecting cases where no pulmonic or cardiac complication existed, we still find that while the pulse in number was only half as many again as in health, the respiration was doubled or trebled. In cases where lemon juice was given, this difference was more than usually marked, for, as is well known, this drug is often observed to have a direct influence in lowering the action of the heart. In one case the pulse was 120 and the respiration 36 ; in three days the former was 70 and the latter 32 ; the day before the pulse was still 70 and the respiration had reached 24. Here the effects of the remedies had been to depress the heart's action, while the respiration was only lowered as the disease more slowly departed. In another instance of a lad where the pulse was 120 and the respiration 40, on the following day the former was 100, and the latter 32 : in three days the pulse had fallen to 76 while the respiration was still 32, and during convalescence the pulse remained steady while the respiration gradually subsided to 17.

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The fact then being that the number of respirations in all febrile diseases is increased, I *assume* that this is indicative of a positive increase of function of the lungs, that the blood comes to the lungs loaded with an increased amount of effete matter to be eliminated, that the *besoin de respirer* is more felt, and that the function is for the time augmented. I say, having assumed this from the above-observed facts I anxiously sought in Dr. Parkes' lectures for some direct observations or experiments to prove the point, but I found that little had been added to this part of the subject. It would be, however, a matter of the highest importance in relation to the subject which that gentleman so well discusses, if it could be shown that during a patient's fortnight's illness with typhus, two or three times as much carbonic acid and other excreta are given off by the pulmonic exhalation as in health.—*Med. Times and Gaz., May* 12, 1855, *p.* 472.

3.—TREATMENT OF FEVER BY BRANDY AND QUININE.

By Dr. F. H. Shute, Physician to the Torbay Infirmary.

[This case shows the general treatment of typhoid fever followed at this institution. From July, 1854, to February, 1855, 47 cases were treated, of which only one died. The average duration of the cases was one month.]

Some years ago, port wine was almost the only stimulant ever used, owing, I suppose, to its being, *par excellence*, the favourite beverage of the three-bottle men of the day; and it still maintains its ancient *prestige* in the sick-room, though at our tables it has given place to purer and lighter wines. I have long considered that in brandy we possessed a much more efficient and manageable stimulant, minus the impurities of port and sherry; but our late House-Surgeon, Dr. Biggs, first brought to my knowledge Dr. Todd's treatment by quinine, as practised at King's College Hospital. My experience, certainly, does not coincide with the propriety of its administration from the very commencement of the disease, although, after the heat of surface has been lowered by the use of salines, the best effects seem to have resulted from its employment. Brandy and chlorate of potass, as a drink, were employed from the commencement. All the out-cases were attended by our excellent House-Surgeon, Mr. Stabb; the only case as in-patient, E. W., was admitted under my care on October 10; a native of Cambridgeshire, aged 23, housemaid; apparently, when in health, a strong girl; has been ill for three days, suffering from diarrhœa; presents the facies of fever; countenance dull and leaden; answers hesitatingly and confusedly; says that she feels no pain; eyes wandering; pulse frequent and soft; tongue coated with a thin white fur; thirst considerable; heat of surface moderate; urine scanty and high-coloured; pain on pressure over abdomen, with gurgling in right iliac fossa; one or two rose-coloured lenticular papulæ; no sudamina.—℞. Spt. ammon. ar. ℥ij.; tr. hyoscyam. ℥j.; potass. nit. ʒss.; mist. salinæ (potass. cit.) ad. ℥vj.; una uncia 4tis horis. ℞. Hyd. chlorid., p. Jacobi, āā gr. ij. statim sumend.

12th. During the night she has got out of bed in delirium, and requires restraint to keep her in bed. Intellect more obtuse; bewildered look when roused; no sleep. Brandy ℥iij. during the twelve hours. Beef-tea every hour. ℞. Hyd. c. cretâ gr. xviij.; p. ipecac. co. ʒss.; ft. pulv. vi.; unus 4tis horis sumend. ℞. Potass. chlor. ʒij.; aq. font. ℥j. for drink. Continue brandy and beef-tea.

13th. No sleep; constantly wishing to get up; hearing dull; the answers given evincing great hesitation and indifference. Fur on tongue thick, and brown. Rep. pulv. potass. chlor. and brandy.

14th. State the same, with a good deal of sickness. ℞. Potass. bicarb. ʒij.; ammon. carb. ℈j.; acid. hydrocy. dil. ℥xv.; aquæ ad. ℥viii.; una uncia ter die. Rep. potass. chlor. Omit brandy.

15th. Sickness less; black sordes on the lips and teeth; tongue

hard and black; diarrhœa urgent. ℞. Acid. sulph. dil. ℥iij.; aq. cinnamon. ℥vi.; una uncia 4tis horis. sumend. ℞. Vin. rub. ℥vi.; tr. columbæ ℥ss; una uncia ter die. Beef-tea, brandy.

18th. Diarrhœa less; sickness urgent; otherwise the same. Rep. mist. alkalina c. acid. hydrocy. ℥i. 3tiis horis. Beef-tea and brandy.

20th. Sickness still continues; subsultus tendinum, twitching of the fingers during sleep, picking of the bed-clothes; very drowsy. Rep. mist. alkalina, et adde tr. sambul. ℥ij.

21st. Prostration great; low muttering; answers incoherently, with difficulty of utterance; subsultus increased; pulse 160, soft, small; stools discharged involuntarily. ℞. Tr. opii ℥i.; decoct. amylæ ℥iv., pro enem.

22nd. Prostration increased; sickness ceased. Ordered the best pale brandy to be procured. ℞. Spt. vin. gal. pallid. ℥vi.; mist. camph. fort. ℥xx.; cyath. vinos. omni horâ vespere. Rep. brandy and camphor. ℞. Potass. chlor. ℥i.; spt. ammon. arom. ℥ss.; aq. ℥vi.; una uncia 4tis horis.

23rd. Answers more rationally; less subsultus. Pulse 140; skin cool, with some moisture. Rep. brandy and camphor. ℞. Quinæ disulph. gr. xii.; tr. aurant. ℥iij.; tr. cinnam. co. ℥iv.; aquæ ad ℥vj.; una uncia 4tis horis sumend.

From this time she continued to improve, taking the quinine and brandy, till the 25th, when she was put on full diet till the 29th, when slight bronchitis supervened. Add. ad mist. quinæ, vin ipecac. ℥i.; tr. hyoscyam. ℥ij.

Jan 1. Rep. mist. quinæ.

4th. Rep. mist. quinæ.

7th. Discharged cured.

N.B. In three days this patient took two bottles of pale brandy combined with very strong camphor mixture.—*Med. Times and Gazette, Aug.* 18, 1855, *p.* 163.

4.—ON FEVER.

By Dr. Wm. Stokes, Regius Professor of Physics in the University of Dublin.

A certain change has occurred in our opinions as to the origin of the so-called typhoid inflammation of the lung. We at one time held that it was the co-existence of gastritis or enteritis which gave to the pneumonia the typhoid character. This view was held by us before we had, by that imperceptible power of conviction which arises from experience, admitted the two following principles in their entirety:—

1st. That symptoms which are diagnostic of local disease, where the patient has not an essential fever, are either altogether valueless or much lessened in value when such a condition exists; and

2nd. That the gastric or gastro-enteric lesion is rare even as a secondary disease in fever; so that when irritation of the structures

of the intestinal tubes occur it is a remote, tertiary, and accidental phenomenon.

Our present opinion on this matter is in general the following: that in cases in which there are, in connection with the signs of typhoid lesion of the lung, evidences of gastro-intestinal disease, both the pulmonary and abdominal lesions spring from the one parent condition, and that so far from the specialities of the pulmonary being derived from the accidental complication with the abdominal disease, both have a common character originating in the same source. I am quite sure that a large proportion of those cases described as asthenic pneumonia depending on gastro-intestinal complication, have been examples of essential fever, with the two affections co-existing as secondary lesions.

We have seen that in these cases, I will not say of typhoid pneumonia, but of typhous or typhoid affections of the lung, the various physical signs of pneumonia, singly considered, may be present, and are actually often to be found. They fail, however, very frequently to present themselves in the regular order or succession which is observed in true acute pneumonia.

Now let us inquire whether there is any physical sign peculiar to these cases of typhous pulmonary affections, which does not occur, at least as the rule, in ordinary pneumonia; and I do not know of the existence of any such, unless it be the sign of tympanitic resonance over the diseased lung, a condition first noticed by Dr. Hudson of Dublin, and to which he attaches some importance. Dr. Hudson states that in certain cases of typhoid consolidation of the lung, the sound on percussion was very different from that observable in the ordinary condition of hepatization. He describes it as "a tympanitic clearness over the solidified lung without air being present in the pleura;" indeed he goes so far as to say that in one case the tympanitic clearness on percussion existed fully to the same degree and of the same kind as in pneumo-thorax; here the lung was found perfectly solid throughout, with the exception of a small extent of the anterior and postero-inferior parts which was still crepitating.

It is very difficult to understand what condition of parts could have caused this singular tympanitic clearness over a solidified lung. When we speak of tympanitic resonance, it must be always borne in mind that the tympanitic sound does not always imply clearness on percussion. When you have a cavity in the centre of a solidified lung, or when you have hepatization of the left lung, in connexion with flatulent distension of the stomach, the sound, on percussion, though dull as compared with that of the healthy lung, has a distinctly tympanitic character; to this we have long been in the habit of giving the name of tympanitic dulness. I have never found it, however, to simulate the tympanitic resonance which occurs in pneumo-thorax, or in dilatation of the air cells; it is inferior in degree, and different in character. Dr. Hudson met with four cases, in which the observation of this phe-

nomenon was followed by dissection. One was that of a man who died of extensive inflammation of the left lung in the Meath Hospital, in the spring of 1832, in which, at the close of the case, from the hollow sound on percussion at the lower part of the left side, it had been previously quite dull, a pretty general opinion existed that a pneumonic abscess had formed and burst into the pleura. On dissection, the side having been punctured, no air escaped; the lung was red and solid, but without abscess, and the pleura was adherent over two-thirds of its extent. I must, in justice to myself, state that, in this case I never entertained the idea that an abscess had opened into the pleura. In another case, the lung was found hard and solid, from chronic pneumonia; and in the two remaining cases, the condition of parts was similar to that which was presented by that first detailed.

Dr. Hudson admits that, in three of those cases, the tympanitic sound might be explained by reference to the distended state of the stomach; but in the fourth, he thinks that the explanation might be found in the facility with which the vibrations of the air in the bronchus, and its larger divisions, may be supposed to be communicated through a lung in that condition, that is to say, solid throughout; and, therefore, not permitting the loss in a mixed medium of solid and healthy lung of such vibrations.

I am quite prepared to admit that, with extensive solidification of the lung, the dull sound, on percussion, may yet have a tympanitic character; but I have seen no case in which this sound could be confounded with that of pneumo-thorax, or of dilatation of the air cells. With reference to the bearings of this question upon the signs of typhoid pneumonia, I can only at this moment remember two cases which are worth detailing to you. In one, tympanitic dulness did occur over the diseased portion of the lung, without our being able to account for it, by any accumulation of air, either in the pleura or in the stomach. The case was of a low putrid character, and I remember suggesting it as a matter just possible, that there might have been a typhoid pneumatosis developed in the diseased lung; but I am sure that we were not able to establish the existence of such a condition on dissection: the case occurred a good many years ago.

In the second case, which was one of manifest typhus fever, the posterior portion of the right lung became solid or nearly so, while the anterior face of the organ preserved its vesicular respiration. Now we found that over this portion of the chest, that is, over the front of the thorax on the right side, the sound, as compared with that over the opposite lung, was morbidly clear; it was true tympanitic clearness, not dulness, and it continued for three or four days, and gradually disappeared with the resolution of the posterior solidity: this case occurred in the hospital last year, and was seen by Dr. Hudson himself. I confess I am quite at a loss to explain the nature or mode of production of this phenomenon. My friend Dr. Lyons mentions to me that in a case of asthenic pneumonia occurring in a patient of intemperate

habits, which we saw in consultation, the anterior superior part of the left lung presented for a couple of days a condition of morbid clearness, but subsequently became engaged in the general consolidation of the organ.

Dr. Lyons is disposed to regard the abnormal clearness which occurs in these cases as the result of the increased pressure of the respiratory column of air in the still permeable portions of the pulmonary cells, which he considers in certain cases become from this cause expanded beyond their natural volume. His views are that the inspired air presses with a certain force on the whole pulmonary surface, and that if a portion of this surface becomes impermeable to air from solid deposit, occlusion of the tubes which forced it, or other cause, the remaining portion of the pulmonary tissue is acted on by the whole of the inspiratory force, before which it is thus made to expand; this portion of the lung may thus be considered to be in a condition of temporary emphysema, and so gives a correspondingly clear sound on percussion.

There is a circumstance in connection with the resolution of these typhoid or typhous diseases of the lung, different from what is commonly observed in sthenic pneumonia. You know that the true inflammatory hepatization rarely disappears in a sudden manner. It subsides gradually, and the transition-state between dulness and clearness on percussion is generally marked by the "crepitus redux." In the cases, before us, however, and especially where the disease is secondary to typhus fever, the resolution, as I have before stated to you, is often singularly rapid, and is often unattended by the crepitus of resolution. If, then, you consider the state of solidification simply, we find it on the one hand to form without the crepitus of the first stage of pneumonia, and on the other to disappear rapidly, and without the rule of resolution. Thus we are permitted, as it were, to witness the silent and spontaneous development and retrocession of one of the secondary diseases of typhus.

This change from the state of consolidation to that of permeability to air, this rapid change, unattended by the crepitus and resolution, probably shows that the real disease was one unconnected with inflammation, either as a primary or a reactive condition.

You will remember that I suggested to you that some of the cases which have been described as typhoid pneumonia, might be held as examples of an aborted typhus. These were characterized by early consolidation, early disappearance of the typhous state, and a rapid, and often spontaneous subsidence of the local disease. I cannot help thinking that between such cases, and those in which the general disease runs its usual course, there is another class or category of cases in which the progress of the merely pulmonary disease is marked, more or less, by signs of irritation or inflammation of the lung, which inflammation or irritation is either reactive or specific, or both reactive and specific. And I apprehend that these cases which, as it were, float

between the aborted and the perfect typhus, are much more numerous than might be supposed; and in such instances the case is often treated throughout, without a suspicion of its being really an example of typhous disease having been entertained.

What has been now said should impress on your minds that rule in practice which I have so often urged upon you, namely, that *the rules of diagnosis of local inflammatory disease which are good in ordinary cases, lose their value in a great measure when the patient has typhus fever.* This was long ago proved by the researches of Louis on the condition of the brain in fever, and it was the non-recognition of this fact which constituted one of the greatest errors in the system of Broussais. I have told you, that if you gained nothing during the session but the knowledge and full appreciation of this great principle, your time would have been well spent. How many cases have we not had of headache, delirium, watchfulness, or its opposite, coma,—yet without encephalitis; and so it is with the remaining cavities—symptoms of functional alteration are met with in connexion with the cerebral, pulmonary, circulating, and digestive systems in fever. They may or may not be attended by organic change, and that organic change, when it does exist, is not necessarily inflammation; and we cannot, I believe, lay down any satisfactory rule of diagnosis which would show, that in one case of local functional disturbance there was organic change, and in another that there was not. But this much we do know, that those groups of symptoms which are diagnostic of local inflammation in a case which is not fever, cease to be so when they occur in a case of typhus. Let this principle be ever present to your minds, for it is impossible to exaggerate its value. Long ago it was acted on empirically by the best physicians, who refused to adopt antiphlogistic measures in treating the local symptoms in typhus, and who employed stimulants irrespective of them, when the general condition seemed to demand such treatment. It now comes before you as the result of an extended and accurate pathological investigation, and the study of the pulmonary phenomena, as we have seen, enables us to go a step further, and to declare that not only are the symptoms of local irritation doubtful or illusive; but that even the physical signs of a pneumonia, when occurring in a case of typhus, are not to be taken as proof that a local inflammation has occurred.

If these things be true so far as our typhus is concerned, it would appear probable, that in other acute diseases, under the influence of a law of periodicity, and, perhaps, in many that arise from the operation of an introduced poison, the same circumstances may be found, so that we might apply to a much larger circle of diseases those principles as to the secondary local affections, which appear applicable to typhus fever.—*Med. Times and Gazette, May* 26, 1855, *p.* 509.

5.—THREE CASES OF INTERMITTENT FEVER, TREATED BY OLIVE LEAVES.

By T. Spencer Wells, Esq.

Case 1.—J. H., 62nd regiment, aged 34, had intermittent fever in India in 1845. He was in hospital twenty-one days. The first eight or nine days the attack recurred daily; afterwards every other day. He remained free until May, 1854, when he had a slight attack in Malta. The next was in February last, in the Crimea. He had another in April, and was in hospital twelve days, the attack recurring daily. He had two attacks on board the vessel which brought him here, on the 4th of May. No treatment was adopted until the 9th, when he was ordered three grains of quinine three times a day. On the 11th, he had the first attack in hospital, and was ordered two ounces of the infusion of olive leaves three times a day, the quinine being discontinued. The infusion was continued until the 17th, when he had another attack. The infusion was then changed for a strong decoction, which he continued until the 24th. He has had no return of the paroxysm since commencing the use of the decoction,—upwards of six weeks ago. He has been kept in hospital since, in order to dilate an old stricture in the pendulous portion of the urethra.

Case 2.—J. H., 41st regiment, aged 25, never had intermittent fever until he was at Varna, in July, 1854. He was then in hospital two months with quotidian. After he went to the camp, attacks occurred irregularly; he would be in hospital for a few days, and then go to duty. They occurred regularly every other day for some days before he left, and he had one attack on board ship. He arrived here on the 4th of May, but had no attack until the 17th. On the 18th, he was ordered a strong decoction of olive leaves every four hours, which he continued regularly until the 28th. He had one attack after commencing to take the medicine, but has since been quite free. He remains in hospital on account of granular conjunctiva.

Case 3.—F. D., aged 26, Chatham orderly, had intermittent fever in Poonah and Hyderabad, in 1852. It recurred at first every third day, afterwards every ninth day, for seven or eight months. He arrived in England in July, 1854. He had no attack in England. After arriving here in the spring he had two very slight attacks, but did not apply for medicine. On the 18th of June he had a smart attack at 7 p.m., which recurred at 11 a.m. on the following day. He took an emetic and effervescing draughts, and on the 20th the decoction of olive leaves was ordered every four hours, as before. This he continued until the 26th, when he complained of pain over the liver, and the stools became light-coloured. Half-a-drachm of the acetate of potass was given three times a day, and diluents used freely until the 1st of July, and he was discharged to duty on the 3rd.

Mr. Wells added, that these were the only cases in which he had been able to try the effect of olive leaves in intermittents since he had drawn the attention of the Society to the subject at the first meeting. The results were satisfactory, or appeared to be so; but he did not wish them to be received for more than they were worth, and brought them forward principally to elicit the experience of others, and as some encouragement for further observations.

[The decoction is made by boiling two ounces of fresh leaves in a pint of water.]—*Med. Times and Gazette, Aug.* 11, 1855, *p.* 147.

6.—*On the Febrifuge Properties of Salicine.* By Dr. Macari.—Salicine is a white, crystalline, soluble substance, and is exclusively employed in Spain and Portugal in the treatment of intermittents. As there is reason to believe its importance as an indigenous febrifuge has been underrated, or that its employment has not been properly managed, it may be interesting to quote the conclusions Dr. Macari, a Sardinian Practitioner, has arrived at respecting it.

1. Salicine is an important succedaneum to quinine, both from its its febrifuge power, and the repugnance many patients manifest to quinine. 2. The dose is from 15 to 45 grains, given during the intervals of a paroxysm, and repeated according to circumstances. 3. The first dose generally notably diminishes the intensity and duration of the next paroxysm, but rarely cuts the fever short. 4. The mode of action is analogous to that of quinine, but feebler, so that the drug is not suited to pernicious fever liable to fatal termination. 5. It is given most efficaciously in solution. 6. Its price, already much lower than that of quinine, is susceptible, in the event of a demand arising, of much diminution, owing to the little value of willow bark. 7. Salicine does not give rise to any of the perturbations of the nervous system producible by the preparations of bark. 8. It is successful in all simple intermittent fevers, at whatever age, or state of health, these may occur; and it may, therefore, be often used as a substitute for quinine, when this becomes distasteful or inefficient. There are cases, however, which resist its influence, and for which quinine is required.—*Journal de Pharmacie.—Med. Times and Gaz.* July 21, 1855, *p.* 68.

7.—*On the use of Caïnca Root in Scarlatinal Dropsy.*—The root of Caïnca (chiococca racemosa) is highly extolled by M. Bruguier, as a diuretic; he warmly advocates its use in divers dropsies, but especially in that following scarlatina. He says, "that there is not in the whole materia medica any drug that acts with more promptitude or more success." His enthusiasm seems to have induced him to overrate its merits, yet he details six cases in which the use of this root was attended with remarkable success.

Caïnca root, bruised, ℥ij.
Water, ℥viij.

Macerate for twenty-four hours, and boil: to be taken in three doses, at intervals of two hours. This decoction causes an extremely abundant flow of urine, causing micturition so frequently as even to interfere with sleep.—*Revue Therap. du Midi.—Dublin Hosp. Gazette, Feb.* 1, 1855, *p.* 12.

5.—*Creosote in Intermittent Fever.*—Zwetkoff was induced to make a trial of creosote in intermittent fever, (1) On account of its specific influence over the abdominal ganglia of nerves, especially the solar plexus, and (2) On account of its good effects in periodical vomiting. He gave it in doses of from nine to fifteen drops, three times per day, in mucilage.—*N. Y. Journal of Medicine.—American Med. Monthly, Jan.* 1855, *p.* 68.

9.—ON THE TREATMENT OF ERYSIPELAS.

By Dr. R. B. Todd, F.R.S., Physician to King's College Hospital.

[This disease is of very frequent occurrence, often of a very serious character, requiring the most diligent watching, and which we should be well prepared to treat. Dr. Todd's remarks, in a clinical lecture on this subject, are very valuable, and well worthy of attention. He notices two forms of the disease: first, erysipelas, attacking the head and face; and, second, that form which comes more under the notice of the surgeon. The first case mentioned was that of John Child, aged 20, who, after exposure to wet and cold, was attacked with general febrile symptoms, swelling and redness of the nose, which gradually spread, until they involved the whole of the face and head. Under the treatment adopted, this patient was well and discharged in six days after admission. On this form of the disease, Dr. Todd says,]

The duration of the fever in erysipelas is not long, usually varying from seven to fourteen days, but the phenomena of the disease divide themselves into two classes, viz., the *primary* and the *secondary*. The former of these comprise the rigors, the vomiting, the general febrile symptoms, the rapid pulse, the peculiar redness and swelling of the skin, &c.; and if due attention be given to uphold the powers of the patient from the commencement of the attack, it rarely happens that the secondary phenomena manifest themselves at all; for the disease of erysipelas, whatever its nature, appears to fall chiefly upon the integumentary system, extending its virulence upon the true skin and the mucous membranes; but it sometimes, indeed frequently, if not combated by well-directed measures, spreads from the true skin and mucous membranes to the areolar tissue beneath these structures, and it then gives rise to the secondary phenomena of the malady, namely, fever of the hectic kind, and the formation of collections of pus, either at the seat of the primary disease or in other parts of the

body. It is very important that you should keep in view this tendency which erysipelas has to involve the cellular tissue beneath the skin, and there induce the formation of pus; for it should be your aim to cure the disease without allowing it to effect these secondary consequences which are always exceedingly wearying and debilitating to the constitution, and sometimes so exhausting as to terminate the patient's life. In the case which I have just related to you the cure was speedily effected without the occurrence of any of these secondary results; and this I attribute in great measure to the plan of treatment which was adopted.

In the second example of erysipelas which I wish to bring under your notice to-day, the result was by no means so satisfactory: indeed the case forms a good contrast to that of John Child, illustrating as it does the less favourable course of the disease, under, as you will presently see, a very different course of early treatment from that pursued in that case. The patient is a lad named John Walker, who was admitted into Fisk Ward on Feb. 17th, 1855, with erysipelas of the right leg and foot; and, I am sorry to add, he is still under treatment in the hospital, and likely to be so for some time to come. There was no history in this case of the patient's having received any injury, and nothing whatever to explain the occurrence of the attack; but it was attributed by the child's parents to his having lived very badly for some time, and to his having been of late much exposed to wet and cold. The short account which we have of this case is this:—About a fortnight before the lad's admission into the hospital it was noticed that his right leg all the way down to the foot was exceedingly red and somewhat swollen, and this was accompanied with general febrile symptoms; but neither his parents nor himself could remember whether he had any shivering or not. He was kept in bed, and the only treatment which was adopted consisted in the application of hot fomentations to the limb, and, from the necessitous circumstances in which the parents were situated, in the administration of the poorest kind of food, and very little of that.

Upon his admission into the hospital on February 17th, *i.e.*, about fourteen days after the commencement of the attack, it was found that the primary phenomena of the disease had run their course, and that the secondary phenomena had supervened. For this we cannot attach blame to the medical treatment adopted, for of such he, properly speaking, had none; but it is rather to be ascribed to the extremely bad living and poor food upon which the patient had subsisted during the whole of the winter, and to his having been deprived during the first fortnight of his illness of all those comforts which are so necessary during a severe attack of this disease. And here let me call your attention to the fact—that if low diet, and that general course of treatment which is commonly summed up in the word antiphlogistic, be essential to the cure of erysipelas, surely this poor lad had enough of it; nevertheless, it did not succeed in preventing the

secondary phenomena of the disease from manifesting themselves, for, upon the patient's admission, there was distinct evidence of suppuration beneath the integument of the leg, for the relief of which it was necessary, after a day or two, to make two incisions through the skin, one along the outer and the other along the inner side of the ankle; and the following day it was thought expedient to make a third incision along the dorsum of the foot, for the escape of a considerable quantity of pus which had collected in that situation. The weakness of the patient on his admission was extreme; his pulse was 120, small and very compressible, and the treatment upon which he was at once put consisted in the free exhibition of beef-tea and brandy, ammonia and chloric ether.

The further history of this case is this:—The erysipelatous swelling of the leg and foot subsided, but a very free discharge of pus continued and still continues to take place; the rapidity of the pulse kept up and the exhaustion became, if possible, still greater than on the patient's admission, so that it was found necessary to adopt every means which could be resorted to for the purpose of upholding his strength. To this end beef-tea enemata, each containing ten grains of quinine, were administered regularly every fourth hour, half an ounce of brandy exhibited every half-hour, and as much beef-tea and milk, thickened with flour, as the patient could take; but, notwithstanding all this, the pulse kept up, being 134, 137, 140, &c., and never below 120, the suppuration continued to progress, and, a day or two ago, a large sinus was found to have formed between some of the muscles of the leg, so that it is even now exceedingly doubtful whether this lad will ever recover; for, when suppuration has taken place to this extent, it often not merely spreads along the areolar tissue between layers of muscles, but also, when in the neighbourhood of joints, it may extend downwards and involve these last, and it is by no means improbable that some of the joints of the tarsus may here become affected which may render the amputation of the leg necessary, and such a measure as this, I need not say, would be attended with great hazard to life in a patient so thoroughly depressed and exhausted as this poor boy is. And before dismissing this subject let me observe, that in all these cases the rapidity of the pulse from day to day is a valuable index of the progress which the suppurative process is making; for if you find that the rate of the pulse keeps up, despite of free supplies of nourishment, you may infer that more mischief is about to ensue and that further suppuration will occur; and under these circumstances you will seldom find that the pulse will come down until a free discharge of purulent matter shall have taken place.

Such then, gentlemen, are the two cases which will serve as the basis of my remarks to-day. The one, an ordinary case of erysipelas of the head and face; the other, a case of that form of the disease which is most frequently met with in the surgical wards, phlegmonoid

erysipelas, and which is precisely analogous to the traumatic erysipelas, or to that which follows a surgical operation.

Now, as I have already remarked, the most common form of erysipelas which comes under the care of the physician is that of the head and face. Let us trace the clinical history of this disease. It very frequently begins in the throat, and it is important that you should be well acquainted with the various courses which it may take. It is one of the features of this disease that it has a remarkable tendency to spread, sometimes wandering all over the body, from face to neck, and neck to trunk, being then termed erratic erysipelas. When, then, it has commenced in the throat, it seldom finishes its course there, but immediately begins to spread, and its ordinary course is upwards from the throat through the nose to the face and head; but it sometimes pursues the opposite direction, and wanders down, along the respiratory mucous membrane. In following this latter course it generally passes very quickly, and most fortunate is it for the patient that it does so, over the laryngeal mucous membrane, and then, affecting the mucous lining of the air-passages below the larynx, produces *erysipelatous bronchitis*—a complaint of more common occurrence than is generally supposed, of very fatal tendency, accompanied with great prostration, and which often leads rapidly to purulent expectoration. When this malady terminates fatally, it generally does so by inducing that condition which, since the death of the emperor of Russia, has been so much talked about as paralysis of the lungs—a bad term, intended in plain English to express that state of things which occurs when the air-passages become choked up with muco-purulent secretions which the patient is too much exhausted to expectorate; this accumulation of viscid secretion in the air-tubes tends, of course, to produce suffocation, by interfering with the proper aeration of the blood in the lungs; and the consequent retention of carbonic acid in the circulating fluid poisons the nerves and nervous centres, diminishing their excitability, and rendering less free those reflex actions on which expectoration in some degree depends. This is still more promoted by the accumulation of the secretions in the air-passages, and so these two conditions, narcotized nerve and loaded air-tubes, go on mutually acting and re-acting upon each other until at length death takes place.

In some instances, however, the erysipelas commencing in the fauces spreads no further than the laryngeal mucous membrane, and it then produces what is termed œdema glottidis, one of the most formidable affections to which the human frame is liable. I cannot too strongly insist on keeping in mind the true pathology of this most alarming malady, for if you thoroughly understand the true nature of this complaint, and act up to that knowledge, you may, I believe, save many lives; whereas, if you are shilly-shally in your treatment, either from ignorance of the pathology of the disease, or from prejudice in not acting up to your knowledge of it, you will certainly lose your patient.

The disease consists in an erysipelatous inflammation of the laryngeal mucous membrane, which rapidly leads to swelling of the glottis, and thus to narrowing and occlusion of the rima glottidis, which induces the most intense dyspnœa, and quickly kills. For this condition there is but one way of affording relief, and that is by immediately making an artificial opening into the trachea, below the chink of the glottis; and the farther below this point the opening can be conveniently made, the better, though, as you are all doubtless aware, the lower down the aperture into the trachea, the more formidable is the operation. But what I wish to impress upon you is, that you should lose no time in resorting to this step, after having become satisfied as to the nature of the attack; the sooner the operation is performed, the greater probability will there be of your saving the patient's life. Nevertheless, I would remark that although the first step in the treatment which has to be performed by the Surgeon, viz., the providing an artificial inlet for air into the lungs, is a very important one, still the most important part of the treatment belongs to the Physician; and any one who has witnessed the proceeding must have felt convinced that although the relief afforded by the operation is instantaneous as regards the breathing, yet the patient will still die unless proper means are adopted to combat the local affection and the constitutional state which accompanies it.

I have long been convinced that the ordinary so-called antiphlogistic means are not only powerless as regards the œdematous state, but are destructive to the vital powers of the patient, already much depressed by the necessary surgical interference, and I determined, when opportunity offered, to pursue, from the moment of the operation, a different line of treatment.

[In another case, where there were severe symptoms of œdema of the glottis, tracheotomy was performed, and the patient's strength kept up as much as possible.]

He was fed upon strong beef-tea, and brandy, of which half-an-ounce was given every hour, and ammonia and chloric ether were also freely exhibited; and lastly, as at first, his power of swallowing was not good, injections of beef-tea, containing a considerable quantity of quinine, were thrown, at stated intervals, into the rectum. In short, this patient was well supplied with food and stimulants, but in small doses at short intervals; and, during the whole time he was under this treatment, you will hardly believe it when I tell you, he had scarcely any fever, and his pulse from 110 in a minute steadily came down to 99 on the first, 86 on the second, and 75 on the third day after the operation. On the evening of the second day the tube was taken out of the trachea, as he was found to cough up mucus freely through the glottis; in a fortnight the wound was healing up kindly; and in a month from the date of the operation, the patient was discharged quite well, the wound being by this time perfectly healed.

Now if you look at the statistics of these cases, you will find that the deaths are but little under a hundred per cent.; indeed it is a very rare thing for one to hear of a case of recovery from œdema glottidis after the operation of tracheotomy has been performed; and it seems to me very questionable whether similar treatment to that which was pursued in this instance ought not always to be adopted in cases of tracheotomy, for the operation is in itself a very severe one, and accompanied with great shock to the nervous system, while there is invariably great distress of the respiratory organs during its performance.

Let me now call your attention for a few moments to that form of erysipelas which, commencing in the throat, confines itself entirely to the faucial region. I need not now enter at length on this subject, as two years ago I gave two clinical lectures on it, to which, if you are so disposed, you can refer; but I shall content myself with giving you a very brief account of this disease. Its peculiarity consists, as I just now remarked, in the fact that the force of the poison seems to fall upon the mucous membrane of the pharynx, and to paralyze the pharyngeal muscles, so that the patient is apt to die, not from want of air as when the erysipelatous poison attacks the mucous membrane of the larynx, but from want of food, the inability to swallow being even greater than in cynanche tonsillans, which creates a mechanical obstacle. If you look into the throat of a patient labouring under this affection, you will find the pharyngeal mucous membrane exhibiting a peculiar dusky-red colour, the fauces will be perfectly open, and you will be unable to discover any mechanical impediment to free deglutition; and if, now, with your finger, or a pen or probe, you touch the back of the pharynx, you will find that none of the pharyngeal muscles are thrown into action, as invariably they are in a state of health, in other words, you cannot excite the reflex actions necessary for deglutition; and if you give the patient something to swallow, as soon as he gets the liquid or solid, whichever it be, upon the back of the tongue, instead of its being grasped by the contraction of the muscles of deglutition, and guided, as it were, into the œsophagus, as it would instantly be in health, in consequence of the complete palsy of these muscles, it falls by its own gravity down into the larynx, and is thence immediately ejected by a powerful expulsive effort through the mouth and nostrils. I have seen and have notes of several of these cases which have occurred both in Hospital and in private practice, and all those which were treated upon the antiphlogistic plan died; but for some years past now, from being better acquainted with the true pathology of the malady, I have invariably resorted to an opposite mode of treatment, precisely that, in fact, which I just now advocated as most beneficial in œdema glottidis, except that we can get on here without calling in the aid of the surgeon—and since I have pursued this practice, I have not met with an instance of this affection which has not recovered. The difficulty in the treatment of

these cases is to get sufficient nourishment into the patient in consequence of the complete inability to swallow; but if a person cannot gain admittance into a house through the front door, the first thing to which he would most probably resort, if it were very important that he should gain entrance at all, would be to try at the back door. So here, since there is an almost insurmountable difficulty in introducing food into the stomach through the mouth, the only resource left us is to throw beef-tea injections, containing large doses of quinine, into the rectum, and feed the patient in this way. Then the back of the fauces should be lightly touched by the solid nitrate of silver, or freely washed with a strong solution of it, and as soon as the power of swallowing begins to return, which it generally does under this plan of treatment, in the course of from twenty-four to forty-eight hours, frequent and large doses of brandy, ammonia, chloric ether, and beef-tea should be exhibited by the mouth. If, however, from any cause, the plan of feeding by the rectum, fails to restore the power of deglutition, you may then have recourse to feeding by the stomach tube; but this mode of proceeding is generally unsatisfactory, and must only be resorted to when all the other means, which I have just mentioned, have been fairly tried and found unsuccessful.

Thus, then, you see, that erysipelas not only affects the external integuments of the body, but also the mucous membranes, both alimentary and respiratory; and in addition to those parts which I have already mentioned as so peculiarly liable to be fixed upon by the poison of this disease, there is one other tissue which, I suspect, it not unfrequently invades, viz., the peritonæum, producing what is known as puerperal fever, or puerperal peritonitis, a disease which I believe is really of an erysipelatous nature, and which certainly in most, if not in all instances, requires to be treated upon a thoroughly supporting plan.

And, in conclusion, let me say a few words upon the treatment of erysipelas generally; but before entering into this part of my subject, I would wish to call your attention particularly to this fact,—that, in looking fairly at the clinical history of the disease, and the issue of various examples, we may arrange the various cases of erysipelas into the five following classes:—

a. There are certain cases of erysipelas which get well of themselves, and these are generally examples of the disease in a slight form, affecting the head and face only, or some other limited portion of the skin. Usually in the course of two or three days, especially if they are kept in a comfortable place, and have a little beef-tea, patients suffering from attacks of this intensity recover, and this, too, in some cases, despite of a lowering treatment, and the use of such remedies as tartar emetic.

b. In a second set of cases of this disease, the very opposite of the first class, the patient dies downright, if I may use the expression; he sinks rapidly, do what you will. This mode of termination is

common to erysipelas, with most of the other diseases which are due to the influence of the poison, whether it be generated in the body, or be of atmospheric origin. Thus in a considerable proportion of cases of cholera, it is perfectly in vain to attach very much importance to anything in the way of treatment, for the patient is dead almost before the case comes fairly under observation ; and, in such instances, I doubt that any plan of treatment ever will avail, because the morbid phenomena are of such rapid accession, almost as rapid as if the patient had taken a large dose of arsenic or of prussic acid. The same kind of thing also occasionally happens in typhus fever, the patient being killed, within a very few days, or even hours, of the commencement of the attack ; and so, likewise, in all the exanthemata, small-pox, measles, scarlet fever, &c.,—all treatment often utterly fails, and death occurs during the first twenty-four or forty-eight hours of the illness.

Hence, then, it becomes necessary in all endeavours to estimate the value of any particular plan of treatment in erysipelas, carefully to eliminate from the data upon which conclusions are to be founded these two classes of cases, viz., first, those which would get well of themselves ; and, second, those which defy every attempt at treatment.

c. The third class of cases of erysipelas comprises those which recover under a suitable treatment, but in which there is a marked tendency to death, but which there is good reason to believe would terminate fatally if left to themselves.

d. The fourth group consists of those cases which pass through the early stages of the malady more or less favourably, but which then exhibit the secondary phenomena of the disease. In this class complete recovery may take place, or death may result from the extreme exhaustion which is frequently induced by the extension of the suppurative process, and by its duration.

e. In the fifth and last class, not only do the secondary phenomena of the disease manifest themselves, but, by some means or other, some morbid material finds its way into the circulation, in effect of which formations of pus take place in various parts of the body, and the patient dies of purulent infection, or pyæmia, as it is called.

The treatment for erysipelas which I have for many years past adopted, is the stimulating and supporting plan ; and this I would, from a long experience, recommend to you, under the conviction that it is the best adapted to save life, and check the progress of the disease ; and that under it you will seldom have to deal with the secondary phenomena of the malady.

The treatment consists in the free and steady administration of food and stimulants ; such as beef-tea, and some form of alcohol, brandy by preference, in regulated quantities, at stated and short intervals : and if drugs are needed, ammonia, bark, and chloric æther, in forms most agreeable or least offensive to the stomach. The beef-

tea and brandy should be given at stated times, in small doses, two or three ounces of the former, and from two drachms to half an ounce or an ounce of the latter, slightly diluted with water. Two different forms of alcoholic fluid should not be given at the same time, such as wine and brandy, or beer and brandy, or gin and brandy; and for other nourishment it is desirable to observe the same rule, as far as possible. You must attend closely to the digestive power of your patient, and be careful to avoid exciting dyspeptic symptoms, such as nausea, sickness, hiccough, flatulence, by giving too much at one time, or by too great variety of stimulant or food.

Sometimes in the course of an attack of erysipelas, the patient may become delirious, or he may fall into a state of coma. When this occurs, some authors would tell you that the erysipelas is inducing inflammation of the membranes of the brain. These notions are now, however, almost entirely exploded, and there is ample evidence that, if death takes place while the patient is in either of these conditions, the cerebral meninges are found, upon post-mortem examination, to all appearance perfectly healthy, or, if there be anything amiss with them, it is that the vessels of the pia mater contain rather less blood than they ought to do, and that none of the products of an inflammatory process can be detected.

It is during the first fourteen days of the illness, that these formidable symptoms are most apt to occur; hence the necessity of beginning early, from the first, with the supporting and stimulating treatment, which you will find a preventive both of delirium and coma. The lower you keep your patient, the greater will be the tendency to delirium or coma, and the more violent or profound will either be, and the development of either is an indication for pressing that treatment in the same or greater doses. Sometimes you will find that the coma persists, notwithstanding all the support you can give; and then you may generally conclude with certainty, that the blood has become poisoned by pus, or some other morbid agent, and that death from pyæmia is about to occur, or that local formations of pus are about to be developed in various parts of the body.

In those cases in which the disease responds to the stimulating treatment, the delirium subsides, and speedily altogether disappears; the redness and swelling diminish; the pulse becomes softer, fuller, and less frequent; the fever decreases, and the state of convalescence is rapidly established.

Sometimes, through feeble powers of digestion in the patient, or injudicious zeal on the part of the attendants, you may find that you are over-stimulating. What are the indications of this? They show themselves in sickness, in flatulence, in a sense of oppression, perhaps also in derangement of bowels. When such symptoms occur, nothing can be easier than to suspend the treatment for a few hours, to give only a little cold water, and afterwards to resume it cautiously in diminished quantities.

The upshot, then, of all I have to tell with respect to the treatment of erysipelas, is to give stimulants and nourishing food freely, and from the very commencement of the attack. Don't trouble yourselves with too much attention to the secretions, as some are apt to do, who imagine that the alteration of these by grey powder, black draught, *et hoc genus omne*, is necessary to the favourable issue of the case, but who, by the time they have got the secretions into what they conceive to be a correct condition, find that their patient is fairly slipping through their fingers, and is dying, worn out, and exhausted. As soon as you are satisfied that the patient to whom you are called is labouring under erysipelas, at once begin to administer stimulants and nourishing food, using the precautions I have mentioned; and what I wish above all things to impress upon you is, that this stimulating treatment should be employed from the very beginning of the attack. With respect to the bowels, you must be guided by circumstances; if they are confined, you may open them by an enema, or by a dose of castor oil, or some other medicine, which will neither irritate the mucous membrane of the alimentary canal, nor exhaust the patient's strength; always keeping in view that the poison of erysipelas is exceedingly depressing in its action, and that the object of all your treatment should be, first, to antagonize the poison, and, secondly, to uphold the patient's powers so as to enable him to bear up against one of the most lowering and debilitating diseases to which the human frame is liable.

Now of all the stimulants, I believe, as I have already said, the alcoholic are the best, and I have witnessed such remarkable effects in such a variety of cases, produced by their free exhibition, that I am inclined to consider them as *antidotes* to the erysipelatous poison; and if I were to be restricted to any one remedy in the treatment of this disease, I should, assuredly, choose brandy. With a commissariat well supplied with brandy, and simple means to keep the bowels open, I think I could engage to keep erysipelas at a minimum among the wounded in our army in the Crimea.

Some attach great importance to the use of the tincture of sesquichloride of iron in this disease. I have no doubt many cases such as those which I have placed in my first group will get well under that drug, partly and mainly because it excludes depressing treatment, partly, perhaps, from some tonic power in the medicine, but I would as soon think of trusting to it in the treatment of the third or fourth group of cases, as I would to the billionth of a grain of aconite, or of arnica, or sulphur, or any other homœopathic absurdity. The remedy, so far as I know, is unobjectionable in itself, but its power to do good is small; and if you try it, let me advise you not to trust to it alone, but merely to use it as an adjunct to the treatment which I have endeavoured to impress upon you to-day. For, as I before said, there is a large class of cases of erysipelas which will get well without any treatment whatever, and, indeed, in spite of depressing treatment, be-

cause either the dose of the poison which these patients have imbibed has been very small, or else because their powers of resisting and holding up against the disease are very great; and in such cases you may amuse yourselves, if you like, with giving such remedies as the sesquichloride of iron. But in all severe examples of the malady, place your trust in food and brandy, freely given under careful regulation, and adopted from the very commencement of the attack.—*Med. Times and Gazette, July* 14, 1855, *p.* 27.

10.—ON THE PROCESS OF THE ELIMINATION OF MORBID POISONS.

By J. G. French, Esq., Surgeon to St. James's Infirmary, Westminster.

The term elimination is of modern date. It is not contained in Johnson's dictionary; it is derived from *e limine* (from the threshold) and is sufficiently expressive. It is used by Mason Good as applied to the exanthematous eruptions which he says are "eliminated upon the surface as the best and most salutary outlet."

The process of the elimination of morbid poisons from the system is not only a subject but little understood, but very serious errors are generally entertained upon it. It may be remarked that all knowledge in the medical art has ever been but slowly acquired. It is but a short time since that the reparation of wounds was ascribed to inflammatory action, although it is now perfectly understood that inflammation is but a disturbing cause too apt to interfere with, and delay the process of reparation; and in point of fact the treatment of those injuries consists in avoiding the causes of inflammation, and placing the injured parts under such circumstances as the surgeon knows, from study of the natural mode of reparation, to be favourable to the process of cure. Any improvement in the medical art has always been evinced by greater simplicity of treatment, arising from more accurate knowledge of principles.

Now it may be stated as a general rule, and a most valuable maxim, that whenever nature undertakes to perform a specific process of elimination, the greatest possible care should be taken by the physician that no interference on his part should meddle with its accomplishment. "A meddlesome midwifery is a bad midwifery" was the frequent exclamation of an able teacher of his art; that a meddlesome physician is a bad physician is equally certain. In fact, the difference between one physician and another consists in the success with which each interprets nature. Let us illustrate this position by reference to the exanthemata. In small-pox the treatment is founded on the theory that the skin secretes or separates the poison from the body, and it is on the knowledge of what this process is, as revealed by direct clinical observation alone, that the physician is of service in

conducting a case in the path of recovery. It is a matter of history that all attempts on his part at elimination have ever been attended with but one result—namely, that of aggravating the disease ; while successful treatment depends wholly on the power of the constitution in eliminating, and on the resources of the practitioner in removing all obstructions to the completion of this process ; and, when this is accomplished, to sustain the patient during the extensive reparation which the skin has to undergo from the ravages of the disease upon it. Again, in scarlet fever the process of elimination is left to the natural efforts, whether this be by the skin or kidneys, the treatment, as far as this is concerned, being still to take care that these structures are placed under favourable circumstances for the performance of their functions. So, in cholera, if the alimentary canal be really performing the part of elimination, then the same rule applies—namely, that every obstruction to the performance of this function should be removed. To act consistently, we should totally abstain from giving aliment of any kind ; it is unreasonable to expect that the alimentary canal can be assimilating and eliminating at the same time. We give ice on the same principle that we use cold ablution to the skin in certain states of fever—namely, to moderate excitement and relieve congestion, and thus remove obstruction to the performance of the necessary elimination. It is not from any vague notions of either astringency or supposed power of quieting the stomach that ice is useful ; it is suggested by the direct clinical observation of nature, and its use is analogous to that of easy posture and comfortable applications in the treatment of wounds. We give water to quench the thirst, refresh the patient, and restore the fluidity of the blood, as soon as the system is capable of receiving it. It is a great mistake to suppose that the study of the process of elimination, regarded as a natural function, can lead to any other view respecting *eliminating medicines* than to wholly condemn them as the result of experience and reason.

I am induced to bring this subject before the profession, in consequence of the publication of Dr. George Johnson's views on the use of castor oil in the treatment of cholera, and I deem it necessary to show the fallacies of the reasoning by which it is recommended, and of the data by which it is supported.

Dr. Johnson refers to the blood as the recipient of the poison, and says, "It would, perhaps, be difficult to prove that any purgative medicine has the power of directly assisting the escape of the cholera poison, or the products of that poison, from the blood into the intestine ; but it cannot be doubted that, by removing the contents of the bowel, and so obviating the impediment to the secretory process which would result from their accumulation, an indirect aid is given to the elimination of the poison from the blood. The speedily fatal consequences of over-distention of the bowel, when the attempts to remove that condition have been unsuccessful, may be seen in Case 31."

Now, the theory of purgatives which act on the blood is this:—Certain substances, when introduced into the system, are found to be shortly afterwards eliminated from it by the bowels, diluted with a considerable quantity of other material. Advantage is taken of this fact, in the practice of medicine, to eliminate certain morbid materials injuriously retained in the system, in the hope that they may be amongst those forming or contained in the menstruum which eliminates the drug.

The theoretical objection to purgatives of this kind in cholera consists in the fact, that the only reason why purgatives act at all is that they are of a poisonous nature, and we do but observe in their action or expulsion from the system that tendency to reparation which follows all injuries where vital power exists, and institutes for this very reason the diarrhœa in cholera. So that if a patient be poisoned by an excessive dose of any purgative received into the blood, it is unwise to give him senna or saline purgatives with the view of eliminating it; for if there be vital power, then the poisonous purgatives will be eliminated by nature's own efforts, and it is by no means certain that such poison would be more speedily eliminated by this proceeding; for the same menstruum may not be exactly suitable for each purgative drug, and so a waste of material and of vital energy may be thus induced, the elimination of the poison delayed, and the sinking of the patient hastened.

The practical objection to purgatives on the blood may be illustrated by the following example:—In 1832 an enthusiastic practitioner wrote to the Board of Health to announce an important discovery. He had treated some cholera patients with croton oil, and his success exceeded his sanguine expectations. The Board wrote for further information, and received in answer that the patients to whom the purgatives were given were all dead; but that circumstance was not to be regarded as any objection to the practice, for had it not been adopted the patients would have died sooner.—*Lancet, July* 14, 1855, *p.* 26.

11.—ON THE THERAPEUTIC PROPERTIES OF CARBAZOTIC ACID, &c.

By Dr. T. Moffat, F.R.A.S., &c., Hawarden.

[The properties of this acid were first brought into notice by Professor Crace Calvert, who read a paper on the subject at the Meeting of the British Association in September last. Dr. Bell, of Manchester, has cured cases of intermittent fever with this acid.]

It is formed by the action of nitric acid on indigo, aloes, silk, and other organic substances. It forms yellow shining scales, soluble in water, to which it gives an intense yellow colour and bitter taste. The process recommended by Liebig for preparing it consists in boiling ten

parts of diluted nitric acid on one of indigo, and adding to the liquid, when cold, a quantity of potassa. The potassa combines with the carbazotic acid, and forms carbazotate of potassa; which, in its turn, is decomposed by the addition of another acid, by which the carbazotic is set at liberty, and is deposited in brilliant yellow crystals. It is soluble in alcohol and ether. It unites with salifiable bases, and forms compound salts. The name is derived from its composition, which, according to Liebig, consists of

Carbon . . .	15 atoms.
Azote	3 „
Oxygen	15 „

Professor Crace Calvert's process I do not know; but, as I have before stated, the carbazotic is procured from carbolic acid, which, you are no doubt aware, is one of the products obtained in the distillation of coal tar.

In a therapeutic sense, carbazotic acid and the carbazotates may be ranked with the tonic and astringent classes of remedies; but their astringent qualities, I believe, act indirectly, *i. e.*, they restrain discharges, by improving the general tone of the system. I have prescribed the remedies in the following cases.

The first case in which I used the carbazotic acid was that of a woman suffering from an attack of continued fever, complicated with subacute peritonitis and tympanitis. When the case had progressed to that stage in which the use of tonics and stimulants is indicated, I prescribed grain doses of the remedy three times a day. The woman got well just as if quinine had been administered.

The next case was that of a woman suffering from anæmia. She was recovering under the use of quinine and iron. I suspended the quinine and chalybeate treatment, and gave carbazotate of ammonia, in grain doses, three times a day. She lost ground while taking the carbazotate, and again improved on resuming the quinine and chalybeate remedies.

The next was that of a child ill of scarlatina maligna. Carbazotic acid and wine were administered. The child died.

I prescribed it next in a case of chronic eczema; and the patient got well.

Believing that carbazotic acid, in combination with ammonia and potassa, possessed tonic qualities, I felt inclined to try it in combination with metallic bases; and, at my suggestion, Professor Calvert prepared some carbazotate of iron and carbazotate of zinc. At the time I received them, I had two cases of cephalalgia under my care. One was of long standing. In one, I gave grain doses of carbazotate of zinc; and in the other (that of long standing), I prescribed the same quantity of carbazotate of iron three times a day, in combination with extract of conium. The carbazotate of zinc produced nausea and other unpleasant feelings; and the woman said I had poisoned her. I stopped the carbazotate of zinc, and gave carbazotate of iron, as in the other

case. This did not produce any unpleasant effects. Both cases improved: indeed, one case got quite well; and that of long standing got so much better that I have not been called upon to prescribe for it since, and a month or more has elapsed since the remedy was administered. The quantity taken by each patient was thirty-two grains. in a period of fourteen days. In both cases, quinine and iron were tried, in combination with the same extract; und, in the case of long standing, sulphate of zinc and strychnine were taken without relief.

I shall now read notes of two cases in which the carbazotate of ammonia was eminently successful.

Case 1. S. E., aged 17 years, had lately suffered from an attack of continued fever. Diarrhœa continued during his convalescence, and for some time after he had so far recovered as to be able to walk about. On the 21st of May last, I prescribed grain doses of carbazotate of ammonia and gallic acid, with one sixth of a grain of opium three times a day. On the 26th, *i. e.*, five days afterwards, I saw him again; and he had improved. On the 2nd of June, the remedies were repeated, and continued daily. On the 7th, I reported him cured.

This young man had not been free from diarrhœa for three months previous to his taking the above medicines; and, during that period, gallic acid, acetate of lead, and opium, were administered without effect. He is now quite well.

Case 2. The next case was one of diarrhœa, of eighteen months' standing. The patient was suffering from mentagra or sycosis, of two years' standing. On the 4th of June, he began the same remedies, in similar quantities as in the preceding case. I lost sight of this patient for a time. I saw him, however, five days ago; and he said that he did not return, as the "bowel complaint was quite gone." Acetate of lead and opium had been administered in this case also without any good result. The sycosis is no better.

There is a circumstance in connexion with this subject of much physiological interest; and I feel that I shall not have performed my part if I do not bring it under your notice.

I have prescribed carbazotic acid and the carbazotates of potassa, ammonia, iron, and zinc, in eight cases; and, in four of these, the skin and conjunctiva became yellow during the administration of the remedies. They were completely jaundiced; and I believe that the yellowness was owing to the colouring matter of the remedies having tinged the serum of the blood. The coloration may have been owing to some change produced in the biliary system by the remedies; but I am inclined to the former opinion. The tinge of the skin and conjunctiva so perfectly resembles jaundice, that the keenest observer would be deceived; and I believe that, if the fact were generally known, there would be jaundiced imposters and malingerers without end.—*Association Med. Journal, August* 10, 1855, *p.* 742.

12.—*The Connexion between Rheumatism, Endocarditis, and Chorea.*—This subject has of late years engaged the attention of some of our most eminent modern practitioners. There is still, however, considerable difference of opinion as to the relation the above diseases bear to each other.....Three chief explanations have been offered of it. It has been said, first, that when chorea supervenes, there is a marked disposition of the rheumatic affection to recede from the joints, and attack the internal fibro-serous membranes, and that, therefore, when we have chorea as a complication, we might infer the existence of the inflamed spinal theca. This theory might appear to receive some support from the case narrated to the Belfast Pathological Society, inasmuch as the joints were not so acutely affected as is usual, and the severity of the spasms causing even opisthotonos, led to the suspicion of the spinal cord being considerably engaged. The second theory is that the cardiac affection may operate as an excentric cause, producing irritation of the afferent nerves, and upon the principle of the reflex function, thus originate the irregular movements. The third and latest view regarding chorea as a blood-disease, looks upon the association of rheumatism, cardiac complication, and chorea, as owing to these maladies being the concomitant effects of the same cause—namely, the specific disorder of the circulating fluids. Mr. Johnston, *Transactions of Belfast Pathological Society.*—*Lancet, June* 23, 1855, *p.* 632.

13.—ON THE DIAGNOSIS OF CANCER AND CANCROID GROWTHS.

By Dr. Maurice H. Collis, Surgeon to Meath Hospital, and County Dublin Infirmary.

[The clinical features to which the deposit of the cancer cell gives rise, are varied considerably by the age of the patient, the locality of the growth, and by the activity of its life. Cancers are divided into encephaloid, scirrhus, and colloid.]

The last has been of late discarded as a distinctive variety. It is now considered to be rather a condition, or stage of degeneration, in certain tissues, and is not absolutely confined to cancer, although it is generally associated with it. It consists of a gelatinous substance, devoid of organization, or possessing only the remains of it along with cancer cells; sometimes the latter are deficient, and the colloid substance appears to be merely the degenerated remains of fibrous tissue; hence, some suppose it to exist in cancer only, as the debris of the stroma of the tumour. These are speculations into which we need not enter here, for colloid tumours generally occur in the internal organs, intestines, &c., where they are beyond the reach of surgery. Small cysts, or granules of it are met with frequently in external scirrhous tumours, but do not in any way influence our diagnosis or

treatment. The other two forms of cancer have been sub-divided, according to the fancy of writers, into many varieties: most of them present clinical features, and may be useful for the sake of description, but are not to be considered as fundamentally different from each other. Even encephaloid and scirrhus are terms rather of clinical than scientific import. The difference which these two forms of cancer present are similar to those presented by the acute and chronic types of other diseases, and they refer entirely to the amount of activity in the development of the cancer cell. The terms are, however, so ingrafted into our systems of surgery, that it would be mere pedantry to discard them, although the terms acute and chronic cancer have been adopted by some writers.

Encephaloid cancer consists of an aggregation of cancer cells, actively and rapidly developed; hence, in proportion to its rate of growth, we find the cells small, round, or oval, with comparatively few nuclei, and an abundance of the blastemal fluid. Free organic granules, and compound granular cells, are also observed, in proportion to the activity of growth. Hence, a section of such a tumour pours out a large quantity of light yellow, or pink milky fluid, in which all these elements are readily found. The fibrous stroma, or proper tissue, of the seat of disease is pushed on one side by the rapid accumulation of masses of these cells; it therefore appears to have a curvilinear arrangement, and is not abundant or dense. The whole tumour is lobulated, the margins of the lobes being curved and composed of this fibrous tissue stretched and displaced; a filamentous network, of varying density, intersects the lobule; the cut surface is pulpy, easily scraped down, or crushed into a pinky creamish fluid; and the entire tumour has a soft elastic feel, in the most acute cases almost amounting to fluctuation. Blood-vessels abound through the tumour, but not with regularity; for minute observations show, that large masses, composed wholly of cells, must derive their supply from vessels in contact with their outer layer, by a process of endosmosis or percolation.

The external surface of such a growth will be nodulated and uneven, but with curving outline; the integuments covering it will become tense and discoloured; their minute veins will be dilated, producing varicosities on the most prominent points, with the enlarged veins ramifying over the surface, and running in a direction from the tumour. At a later period the skin may give way; as it does, it becomes incorporated with the tumour, that is to say, cancer cells are deposited in the interstices of its fibrous tissue. From the orifice thus caused fungous granulations sprout forth, composed of cells (as all luxuriant granulations mainly are); from their surface a foul sanious or ichorous discharge is poured forth, which is composed of large quantities of broken-down cells floating in serum, or blastemal fluid, all in a state of rapid decomposition or putrefaction; pus corpuscles are also sometimes found, but not invariably, and they would appear

to depend upon some accidental condition. Hemorrhage occurs as the result of violence of even a trifling nature, when the tumour is of rapid growth and soft. Occasionally, large masses of the diseased structure die by a process resembling sphacelus: the tumour arrives at a size in which the process of endosmosis seems insufficient to carry the nutritive fluid to those parts which are not in contact with vessels, while at the same time the force of the circulation is weakened by the destructive influence of the disease, and by the waste which it occasions in the system; hence, large portions of the tumour seem suddenly to lose their vitality, and are cast off as sloughs. Unfortunately, this process does not check the disease: cancer grows most actively, not in the centre, nor towards the surface, but in the circumference where it is in contact with the sound parts; so that the part possessed of most destructive energy is left behind, and the disease spreads with increased force under the influence of the vascular excitement which the sloughing process has engendered.

Encephaloid cancer is, from its acute nature, essentially a disease of early and adult life. In the child, it most frequently attacks the contents of the orbit and the bones; in the adult, the glands, viscera, and genito-urinary organs. The female breast is, comparatively, rarely the seat of this form of cancer—at least, in England; in France and, to a certain extent, in Ireland, it appears to be less rare. When acute cancer attacks the old or the feeble, it seems to be peculiarly rapid and destructive in its character: it prostrates the strength and destroys the energies of the wretched patient; it seems as if the vital force were concentrated on the morbid action, to the interruption of all healthy nutrition, and the disease runs its course with great rapidity. Scirrhus differs from encephaloid in many particulars, such as size, form, density, &c.; all differences are, however, referrible to its chronic nature. The cancer cells are more slowly developed, and attain a larger size; nuclei, which have not yet become cells, abound; cells of every variety and shape, but more particularly fibriform and cundate, are observed, as well as fragments of cells, shrivelled or filled with oil globules. There are few organic or compound granular cells, and but little fluid; the fibrous tissue of the gland, or other seat of the disease, is hardened and condensed by the long-continued irritation, and its contractile force tends, in some measure, to check the amount of interstitial deposit; hence, a section of scirrhous tumour presents a surface intersected by straight, or radiating white lines, especially in the breast, where the fibrous remains of the milk-ducts run in all directions from the nipple; the loculi, or interspaces, are small and somewhat angular; their contents are of a firm texture, of a pale, blueish gray colour, semi-transparent, like horn, and glossy, and exude a small quantity of thin milky fluid when pressed or scraped. The entire mass is remarkably tough, hard, and heavy.

Small collections of greenish yellow colloid or jelly-like matter are sometimes interspersed through cancerous tumours. Sometimes, also,

larger masses of a yellow, cheesy, or sebaceous material are to be seen; the latter is found to consist of the remains of the contents of the gland ducts, such as the salts of milk and fat, broken up epithelial cells, &c.; while the former is probably a form of degeneration of the fibrous basis of the tumour mingled with cells. Sebaceous matter and colloid are found in both acute and chronic cancer, but the sebaceous is found in larger quantities in the acute, and the colloid more frequently in the chronic type among external cancers. The external characters of scirrhus *in situ* are those of a tumour, in which condensation of structure and interstitial deposit are progressing with a certain amount of antagonism. Compared with the encephaloid, it is small and less elastic, becoming finally of even stony hardness and weight. At first it may appear isolated and rolling among the neighbouring tissues, but it soon sends out processes which draw in and fix the fibrous structure of the integuments, fasciæ, or muscles near it. The skin becomes rough and seamed with lines, or indented in points: sometimes it has a hypertrophied appearance, such as it has when viewed through a pocket lens of low magnifying power. This is owing to cancerous infiltration, and is found generally in fat persons, the fibres of whose skin are not closely woven; such a cancer gets the name of lardaceous. In other instances, the skin is dotted over with small granules of cancer; or it may be only of a waxy pallid hue, and deficient in elasticity; all these alterations of the integument are elements for an unfavourable prognosis. The tumour becomes fixed to the subjacent structures, and sends processes which can often be felt towards the neighbouring lymphatic glands. These at an early period are enlarged, and become the seat of cancerous deposits. It is a curious fact, of which no adequate explanation has yet been given, that engorgement of neighbouring glands is more common in proportion to the chronic nature of the cancer. You may find large masses of encephaloid isolated in the tissues and not affecting the lymphatics, while even a small scirrhous growth rapidly poisons all the neighbouring tissues of every kind.

Œdema of the skin in the vicinity is another symptom of advanced scirrhus. We see this in scirrhus of the breast, in which we have the arm and side hard and œdematous. Ulceration commences in different ways, not often by tension of the integuments, more by a crack or fissure, or by an excoriation in a fold of skin, where secretions, perhaps somewhat acrid, lodge and excite inflammatory ulceration; this is common in the breast around the retracted nipple. Sometimes a large portion sloughs off as in encephaloid, and from a similar cause, viz., inadequate supply of nutrition. In whatever way it commences, ulceration soon destroys all the less active and central parts, and leaves a foul irregular cavity, the depressed surface and elevated edges of which are hard, undulated, and inflamed. Cancerous deposit goes on in a constantly widening circle, and with rapidity proportioned to the inflammatory or excited action of the part. Ulceration follows in

a somewhat narrower circle, and destroys the older parts of the infected tissues. A foul and copious discharge wastes day by day the strength of the patient, who, overcome by pain, at length falls into a hectic state, which puts a period to his misery. The pain of cancer is variable in degree, but always of a lancinating character. Sometimes it resembles the sudden dart of a fine needle at rare intervals; sometimes severe and constant pangs, as of the sharpest knife. There is another kind of pain complained of, when the tumour has been much disturbed by handling; this is of a deep, dull, aching character, and supervenes in an hour or two, lasting for the greater part of a day. The lancinating character of the pain is of value as a diagnostic symptom, when you are sure that your patient does not misapply the term, as is often the case. Other symptoms, which either belong or have been ascribed to cancer, will be considered, when we are treating on the differential diagnosis of cancerous and other tumours.

We shall now pass to *cancroid growths*. These are growths which possess a minute structure different from cancer, with external signs and symptoms more or less characteristic, and which resemble cancer in their clinical features, without being altogether so destructive. They hold a midway place between simple tumours and cancers. The former are mere redundancies, isolated hypertrophies; the latter are destructive interstitial deposits, destroying not merely by pressure, but by an inherent tendency to convert the neighbouring structures into their own substance.

Cancroid growths are as yet imperfectly known. *Anatomically* they appear to be more hypertrophic than interstitial; even the epitheliomata, when carefully studied, bear out this assertion. *Clinically* they resemble cancers, but are more slow of returning, or if they return rapidly are confined to the immediate neighbourhood of their original seat, and are accompanied with less waste of tissue and less constitutional disturbance than cancers. This is the general rule of such growths. Individual cases occur of great virulence and rapid destruction of life, and of general infection in distant organs, either after or without operation, and relapses after the most complete removals are frequent sometimes at very short intervals, sometimes after the lapse of years.

The commonest form of cancroid is the epithelial tumour or *epithelioma*. This growth is found in all regions where mucous membrane and skin approach each other. It may be situated on the mucous membrane, the skin, or on both; it is also found on the skin in parts where moisture abounds, as in the genital organs; occasionally on the general cutaneous surface, as in that form of ulcer called the chimney-sweeper's cancer; never, according to Velpeau, in the female breast; and certainly very rarely in any gland as a primary affection. Its anatomical element is the common epithelial cell, arranged with an amount of regularity strikingly in contrast with the irregular disorderly grouping of the cells in cancer; this irregularity is only dis-

turbed, when, by the accumulation of a great number of cells in a tube, follicle, or other cavity, those first formed are pushed into the centre ; but a little care will always unravel the primary arrangement. When the growth occurs on mucous or moist surfaces, the rows of cells generally lie in parallel bead-like lines with marked regularity, and have a great resemblance in anatomical structure to simple warty growths. The characters of the epithelial cell are—small nucleus, small size and round shape of cell when first formed, with subsequent enlargement and flattening when brought nearer to the surface, so that it comes to be the largest of all cells. Add to this, great delicacy and transparency of both cell-wall and contents, and perishable nature of the entire cell, and you have sufficient marks by which to distinguish it from any other cell, whether the result of healthy or morbid action.—*Dub. Hos. Gaz., Oct.* 1, 1855, *p.* 257.

14.—*The alleged Cure of Cancer.*—M. Landolfi, chief surgeon of the Neapolitan army, has of late attracted much attention in Italy and Germany, having seemingly cured cancer by means of the topical use of chloride of bromine, in combination with several other chlorides. This success has produced such sensation as to induce the Emperor of the French to give the author six beds at the Salpêtrière Hospital, (where the insane and aged of the female sex are admitted,) to afford him a fair opportunity of proving the efficacy of the remedy. This is the right, practical, and sensible way of dealing with such questions. We are, in the meanwhile, bound to state that 'L'Union Médicale,' of May 1st, 1855, contains a letter from M. Leriche, of Lyons, who says that he has strong doubts about the actual *bonâ fide* cancer having ever been cured by the above-named application, as he has steadily used the chloride of bromine for ten months, in various cases of cancer, without having succeeded in warding off the fatal issue of this formidable disease.

The formula of the paste used by M. Landolfi is the following : Chloride of bromine, three parts; chloride of zinc, two parts; chloride of antimony, one part; chloride of gold, one part; powder of liquorice, sufficient to make into a paste. The principal agent is the chloride of bromine, which has lately been used by itself. Cancers of the skin, the epithelial variety, lupus, &c., are treated by a combination of chloride of bromine with basilicon ointment. M. Landolfi's view is to change a malignant ulceration into a simple one. For this purpose he formerly left a piece of linen spread with the paste as long as a fortnight upon the part, but now he uses imbricated pieces of lint similarly spread, and leaves them only twenty-four hours. The surrounding parts are protected by an ointment composed of one drachm of chloroform to an ounce of axunge. The author considers that the chloride of bromine acts, not only topically, but that the specific is absorbed and aids the cure. Hence he gives, as an adjuvant, a certain

number of pills which contain a minute proportion of the chloride. When the pledgets spread with the caustic paste are taken off, after the above-mentioned twenty-four hours, a line of demarcation is observed which separates the altered from the healthy tissues. Bread poultices are then applied, or else lettuce leaves, or basilicon ointment, which should be changed every three hours, until the eschar is thrown off, which event takes place from the eighth to the fifteenth day.

Numerous experiments have been made in Italy and Germany, and some successful cases have been recorded. It should be added, that there is much fairness about the proceedings; M. Landolfi does not choose the cases, is anxious to make the remedy extensively known, and publishes the unfavourable as well as the favourable results. The Committee appointed in Paris to report respecting the experiments at the Salpêtrière, is composed of the Physicians of the hospital, Drs. Moissenet, Cazalis, and Manec, assisted by MM. Mounier, Broca, and Furnari. This report will be an important document, as the diagnosis will no doubt be very carefully made; but the question of recurrence can only be solved by investigations spreading over several years. *Lancet, June* 23, 1855, *p.* 632.

DISEASES OF THE NERVOUS SYSTEM.

15.—ON CEREBRAL AND SPINAL PARALYSIS.

By Dr. Marshall Hall, F.R.S., &c.

The irritability of the muscular fibre in paralytic limbs varies very much.

I think all who have experimented on this subject, have agreed in *one* conclusion: *the irritability is diminished in spinal paralysis*, or that paralysis which, from whatever cause (such is my definition of the term) excludes the influence of the spinal marrow.

It is in regard to cerebral paralysis that the difference of opinion has existed. I, with the exceptional cases to which I have alluded and which I myself discovered, have found the *irritability* in this case *augmented*, comparatively, at least, with that of the other limb, if not positively; I believe the latter, though *not* in the *degree* in which it is diminished in the other form of paralysis.

The interesting question is,—What is the explanation of the exceptional fact? For Le Gallois has a beautiful paragraph,—

"However opposed results may appear, we must remember, that of two facts, both well-established, one can never exclude the other, and that the apparent contradiction depends on some intermediate element which has escaped us."

What is the "intermediate element" in regard to the question be-

fore us, in regard to which there is, as in all such cases, if the inquiry be pursued, a *discovery* to be made ?

I believe I have made that discovery.

It consists in the fact that all cases of *hemiplegia* are *not* cases of *cerebral paralysis.*

These are not convertible terms. The very title, therefore, of Dr. Reynolds' admirable paper is objectionable. Cerebral paralysis is *one* thing ; hemiplegia, *two* or more !

For example : In a severe case of hemiplegia we meet with *two* series of phenomena. The first consists in paralysis of volition in the arm and leg of the side opposite to that of the lesion ; this is *cerebral* paralysis. But there is a second. There are frequently stertor and dysphagia ; these are symptoms of *spinal* paralysis. Further, the arm and leg themselves are sometimes so affected by spinal *lesion,* or by spinal *shock,* as to be at once affected by *cerebral* and by *spinal* paralysis. In such cases the phenomena of reflex action, and not the phenomena of reflex action only, but the irritability must needs be impaired, according to the *law* which I have discovered.

This state of things becomes chronic. These severe and chronic cases, amongst the poor, are consigned to the workhouse. It is in the workhouse, therefore, that we meet with these *exceptional* cases chiefly.

In my first experiments my patients were chiefly private patients, and I particularly selected cases of distinct, but not too severe character—of moderate, but not too long duration—of decided, but not absolute loss of voluntary power, and I only met with *one* exception to the law of augmented irritability in cerebral paralysis.

In my subsequent experiments, I made no selection of cases, and there were then *several* exceptional cases.

In my last experiments already alluded to, made in the institution in which Dr. Reynolds made his, again I met with *several* exceptional cases, although the number of my experiments was small, the fact which I mentioned to Dr. Reynolds, with the request which I have already noticed.

As to this idea of *exception,* although we use the term, I need scarcely observe that it is utterly erroneous. There *can* be no exception to a physiological law. *An exception is an error—an ignorance.*

Thus there can be no exception to the laws—1. That in pure cerebral paralysis there is augmented irritability ; 2. That in spinal paralysis there is diminution of this irritability.

But when we speak of hemiplegia, we use a term which does not always signify the same thing ; which, in fact, sometimes signifies *cerebral,* and sometimes *spinal* paralysis, and the phenomena are in accordance with the *things,* not with the *word.*

The first error committed in this investigation, consisted in the wrong choice of an instrument. It was one of too great violence. The *power* and not the irritability of the muscles was tested.

The second error consists in the wrong choice of terms and of cases. Hemiplegia is sometimes purely cerebral paralysis ; sometimes combined cerebral and spinal—a fact, in some degree new, resulting, as usual, from a new course of inquiry.

Cleared from all sources of ambiguity in the mode of experiment and in the use of terms, I repeat that my two laws in regard to the condition of the irritability of the muscular fibre in paralytic limbs remain—

1. In pure cerebral paralysis—that in which the influence of the cerebrum *alone* is removed—there is augmented irritability.

2. In spinal paralysis—that in which the influence of the spinal marrow is *also* removed—there is, and in a far greater degree, diminished irritability.

As corrollaries from these facts become laws, I may repeat that the difference in the irritability of the muscles of the healthy and paralysed limbs in cerebral paralysis is the difference between muscles moved by volition, and muscles unexcited ; whilst the difference in the irritability of muscles of healthy limbs and limbs affected by spinal paralysis, is the absence or presence of the very *source* of this irritability, and of the other physiological conditions of these muscles. The difference in the *degree* of augmentation in the first case, and of the diminution in the second, is, therefore, perfectly intelligible to all.

To these statements may still be added the conclusion, that, duly employed, the galvanic current becomes a diagnostic—and it has often been a *corrector* of the previous diagnosis—between cerebral and spinal paralysis.

It is trying to think that after such distinct annunciations of the truth, we shall next read of paralysis—the *cause* of which is *seated* in the cerebrum, or in the spinal marrow, respectively, as synonymous with cerebral and with spinal paralysis. Whereas a disease *seated* in the cerebrum may *extend its influence* to the spinal marrow, and produce spinal paralysis; and a disease not seated in the spinal marrow at all, but in the course of a spinal nerve, may, and does also, produce spinal paralysis, whilst a disease seated in the spinal marrow may produce cerebral paralysis.

We must accurately define, and stedfastly retain, our terms.

For the present I will merely resume the cases thus:

In Cerebral Paralysis the affection is so *limited* as to exclude the influence of the cerebrum and cerebellum.

Hemiplegia, even of cerebral origin, if the disease be not *limited*, either in structure or influence, to the cerebrum and cerebellum, is *not* cerebral paralysis; it is, *pro tanto*, spinal paralysis; there are, at the least, two cases of this kind.

The *pressure* or other injury in regard to the medulla oblongata, denoted *at first* by stertor or dysphagia, may so continue as to induce and leave a form of spinal paralysis as these subside; the limb may be rigid (*spasmo-paralysis*) and deformed.

The *shock* inflicted on the spinal centre may be such as never to be recovered from ; the limb is then flaccid.

The simplest case of cerebral paralysis is that arising from *division* of the spinal marrow; all the limbs situated *below* this division are affected with *cerebral* paralysis.

Spinal Paralysis arises from any lesion, seated in any locality which *excludes* the influence of the spinal marrow. It may therefore be seated—primarily or secondarily in *any* part of the spinal marrow, whether 1, within the cranium; or 2, within the spinal canal; or 3, in *any* part of the spinal nerves.

Recently, M. Duchenne has assumed that there are two kinds of *general* paralysis; one, in which the intellectual faculties are impaired; the other, in which there is no danger for those faculties; and that galvanism, as I have stated in regard to cerebral and spinal paralysis, affords a means of diagnosis. I suppose that as in the former the paralysis is cerebral, so in the latter it is spinal. M. Duchenne seems to have come round to my opinions, the difference now being, after all, as to whether the irritability in cerebral paralysis is persistent only or positively augmented, a question which the trials of Dr. Reynolds would seem to set at rest, at least in regard to a certain number of cases. M. Duchenne concludes—at a discussion at the Société de Médecine in Paris—by stating, "mon opinion sur ce sujet diffère peu, on le voit, de celle du physiologiste Anglais."

There is a mode of investigation which I much wish to suggest. Disease is generally complicated. Experiment may be simple. I would propose to institute cerebral and spinal paralysis, pure and simple, on the dog, and then to experiment with the simplest form of galvanic influence at leisure.

The first part of the experiment, as of most other physiological experiments, may be performed under the anæsthetic influence of chloroform. This last suggestion I make in the cause at once of our own science and of humanity.

One great result has flowed from the investigation into the varied condition of the irritability of the muscular fibre in paralytic limbs—the fact, that *hemiplegia* is sometimes *cerebral*, sometimes *spinal paralysis*—sometimes *limited* to the exclusion of the influence of the cerebrum, sometimes *extended* to the exclusion of the influence of the spinal marrow.

The distinction which I have established in regard to these two forms of paralysis, to which in this paper I add a third, is anatomical and positive.

When physicians speak of *hemiplegia*, they in reality use a term the signification of which has reference merely to a *symptom;* and that symptom may have a double or or even a triple origin.

If hemiplegia affects and excludes the influence of the cerebrum only, the case is, I repeat it, cerebral paralysis; but if it affects or excludes the influence of the spinal marrow also, as it does in some

severe cases, it is spinal paralysis; it will constitute one of those cases which, from ignorance of their real nature, and from our error in viewing the terms cerebral paralysis and hemiplegia as synonymous and identical, have been regarded as *exceptional* cases.

These exceptional cases are rare amongst the milder cases of private practice; amongst the severer cases, consigned to the workhouse, they may amount, as in the subject of Dr. Reynolds' inquiries, to three-fourths of the whole number of cases.

If our terms be once well-defined, all ambiguity is removed; cerebral paralysis excludes the influence of the cerebrum only; spinal paralysis that of the spinal marrow also. The characteristics of each of these, when they are themselves distinct, are as fixed as the laws of physic.

To cerebral and spinal paralysis I must add a *third*—viz., *ganglionic* paralysis. This paralysis is excluded in pure cerebral paralysis; it is included in spinal paralysis.

Thus: in cerebral paralysis the muscles become atrophied; in spinal, in reality also ganglionic, paralysis, they become *hetero*-trophied, if, for distinction, I may use that term. I have long regarded the ganglion on the posterior roots of the spinal nerves as parts of the true ganglionic system.

Thus again: in cerebral paralysis the irritability of the muscular fibre is *augmented;* in spinal paralysis it becomes gradually more and more *diminished;* in ganglionic paralysis, if complete, it may become *extinct.*

In both an anatomical and in a physiological sense, the muscles in cerebral paralysis remain muscles, and their irritability, being unexhausted by the stimulus of volition, is, *pro tanto*, augmented, compared with that of the healthy limbs; whilst in spinal paralysis they gradually lose their muscular power, and in ganglionic paralysis they cease to be muscular, either in structure or in function. In certain cases, as M. Cruveilhier and M. Duchenne have shown, the muscular fibre undergoes the fatty degeneration which has recently attracted so much attention.

After these explanations and definitions, I think our investigations may proceed without any of those apparent exceptions and contradictions which have so much obstructed our progress. We must bear them continually in mind; and we must distinguish between true irritability and mere *force*, and the results will be uniform; (unless, indeed, some other element of complication exist, still undetected;) and all difference of opinion, so discreditable to physiological and medical science, will cease.

I will now, for the sake of still greater distinctness, throw the subject into a tabular form.

I.—*In Cerebral Paralysis—*
1. *The Reflex Actions,*
2. *The Influence of Emotion, and*
3. *The Influence of Strychnine,*
4. *The Irritability,*

are more noticed in the paralytic than in the healthy limbs;

II.—*In Spinal Paralysis—*
1. *The Reflex Actions,*
2. *The Influence of Emotions,*
3. *The Influence of Strychnine are extinct, and*
4. *The Irritability diminished.*

III.—*In Ganglionic Paralysis—*
1. *The Structure, and*
2. *The Functions may be alike destroyed.*

Cerebral paralysis may exist alone. Spinal paralysis of course *implies* cerebral paralysis. Ganglionic paralysis may exist with or without spinal muscular paralysis. In division or disease of the trifacial nerve we have ganglionic paralysis, and in a case which I formerly published, in which the digital nerve being injured, the nail ceased to grow as formerly. But as spinal paralysis implies cerebral paralysis, it also implies ganglionic paralysis. I have at this moment an interesting patient, who, from inflammation of the sciatic nerve from cold, has lost the power of the limb; the muscles are absolutely unaffectible by galvanism, atrophied, heterotrophied, and, I suppose, changed into fat. By restoring the healthy condition of the *nerve*, will the morbid change of structure undergo restoration? This is a question never yet agitated. It will require much observation and—*experiment*, to determine it satisfactorily; and I propose shortly to add to the present brief sketch some ample details.—*Lancet, Sept.* 22, *p.* 277, *and Sept.* 29, 1855, *p.* 295.

16.—RAMOLLISSEMENT OF THE BRAIN, AND ITS DIFFERENTIAL DIAGNOSIS FROM CEREBRAL HEMORRHAGE.

By Professor Trousseau.

The present medical generation believes that ramollissement and cerebral hemorrhage are two affections characterised by such well-marked symptoms, that it is impossible to confound the one with the other. It is established scholastically that, when an individual, whether predisposed or not, suddenly presents the following morbid phenomena, viz., vertigo, loss of consciousness, and paralysis of one of the sides of the body, he is the subject of hemorrhage, on the side of the nervous centre opposite to that on which the paralysis has manifested itself. On the other hand, when vertigo, formication, and cramps have existed for more or less time, and paralysis has been gradually established, the lesion is regarded as a ramolissement. As

a general rule this is true, but so frequent are the exceptions, that we are unable to found our recognition of the nature of the lesion either upon the mode of invasion or the order of the succession of the symptoms. Thus, while we may sometimes observe paralysis, gradually established after precursory symptoms, arises from sanguineous apoplexy, in other cases a sudden attack of paralysis may be the the consequence of ramollissement.

This woman, aged 42, went to bed, early in February, quite well, and on waking she found that the left side, and especially the arm, were not so strong as the same parts on the right side. Alarmed, she dressed herself with difficulty, and repaired to a doctor who bled her. While the blood still flowed the patient lost her consciousness, and when she came to, her left side was found paralyzed, and she had to be carried home. The catemenia, which were some days behind their time, re-appeared on the day of the accident. The symptoms of paralysis gradually diminished, and at the next menstrual epoch only a little numbness remained. On the day the menses re-appeared, the woman was again suddenly seized with paralysis of the left side, and she was then brought to the Hospital.

The following was her condition on admission. She was of a feeble lymphatico-nervous constitution, having the muscular system little developed, and but little *embonpoint*. The left arm hung by her side, the fore-arm was semi-flexed, and the hand in a state of forced pronation, the thumb and fingers being forcibly flexed upon the palm. She could perform no movement with her arm. The leg was less paralyzed than the arm. She could still flex the thigh on the pelvis, and the leg on the thigh, but she could not raise her heel from the bed. All the left side of the face was paralyzed and puffed out, the labial commissure being drawn to the right side, but no deviation occurring to the tongue. The bladder was paralyzed, the catheter being required until death ; and the stools came away involuntarily. Sensibility remained unimpaired, and neither vision nor hearing was impaired. Lastly, the understanding was unclouded, the patient relating her history with the greatest clearness.

For some days after her admission the symptoms of paralysis seemed to diminish. She became enabled to execute some movements of the arm, and the urine passed from the catheter with a jet. So she continued until the catemenia re-appeared, when her intellects became enfeebled, and all voluntary motion of the arm or leg was impossible. In the night of the 19th April these parts were seized with clonic convulsions ; the face became red and injected, the pulse full and frequent, and the skin hot and sweating. On the morning of the 20th she was found in the deepest coma, with stertorous breathing. All the right side, the motions of which had, till then, been preserved, was in a complete state of resolution. She died in the night.

Autopsy 36 hours after death.—The membranes of the brain were highly injected, and especially on the right side ; and the pia mater

was firmly adherent to the brain. In one of the anfracuosities of the middle lobe, in the vicinity of the fissure of Sylvius, a notable quantity of pus was found. The convolutions of the anterior lobe, on the same side, were softened especially at the base, and the cerebral substance was carried away by a stream of water. In the central parts two points of white ramollissement were found, the one in the optic thalamus and the other in the corpus striatum. Nowhere could any hemorrhagic effusion be detected, not even those little sanguineous sugillations which are regarded as indicative of capillary hemorrhage. The colour of the cerebrum had undergone no change at the level of of the softened points, and the parts exhibited in no wise the yellowish tint attributed to hemorrhagiparous ramollissement.

What ought to be our diagnosis in such a case as this? Would not the following be the classical one? Hemorrhage had taken place in the cerebral substance of the right side, which was renewed at the recurrence of the menstrual epoch. Lastly, in accordance with the ideas established by Lallemand, around this hemorrhagic deposit the cerebral substance became inflamed, thus explaining the re-actional phenomena which terminated the scene. This was the diagnosis indicated, and the one which, in the great generality of cases, would have proved true. A strong motive for believing in the existence of sanguineous apoplexy was that these accidents occurred every time in the midst of the hemorrhagic molimen of menstruation. I found myself inclined towards the common opinion, although I felt that there were powerful reasons for suspending my judgment—reasons that I derived from the nature of the paralytic accidents themselves. With a most complete hemiplegia as regards movement, the general sensibility, the senses, and the intellect were preserved unimpaired. Now, I remember to have heard Recamier teach, and I have since observed it to be so myself, that when there is dissonance among the symptoms they are due to ramollissement, while, on the other hand, we must conclude that a hemorrhage exists when there is a consonance in the paralytic phenomena. That which in our case seemed a reason for suspending the judgment, viz., the hemorrhagic molimen that preceded the paralysis, only adds to the force of the distinction laid down by Recamier; and it remains demonstrated, at any rate, that a sudden paralysis of a portion of the body may be the result of a ramollissement.—*Med. Times and Gaz., June* 30, 1855, *p.* 639.

17.—ON EPILEPSY.

By Professor Trousseau.

Diagnosis from Hysteria.—I will suppose you observe one young girl the subject of slight vertigo, which scarcely lasts for three seconds, and then another rolling about on the ground in every direction, uttering cries, breaking every object near her, and requiring to be

held down by four or five persons—men by preference. It might seem to you that the first had little the matter with her, and that the other was very ill. Not so; the first is the dog that bites without barking, the other the dog that barks without biting.

In hysteria there are usually precursory symptoms. The subjects of it complain of a sense of suffocation, of a fulness about the stomach, an indefinable nervous irritation, and of the sensation of a ball rising into the throat. During the attack the movements are extensive, powerful, and irregular, both sides of the body participating. Considerable change of place results, and much force is required in order to restrain them. There is much noise and little danger; and the scene terminates with a peculiar cough, sobs, tears, and the emission of aqueous urine. The epileptic is a far more quiet patient. Where he is struck down there he remains motionless, and if it should chance to be in the fire he may be burned to ashes. The primary tonic contraction is replaced by clonic contractions, small in extent; there is an amount of insensibility never observed in hysteria, and at the end of the attack peculiarities are noticeable that have already been described.

Diagnosis from Eclampsia.—As to all the phenomena proper to the attack, these are identical; so that we may call eclampsia epilepsy, wanting the relapse; and epilepsy, eclampsia with relapse. This is true only as regards the form of the affections, for between their nature there is as much difference as there is between gout and a swelling of the great toe from a prick. In children we frequently observe eclampsiform convulsions, and they have been regarded as symptomatic of rubeola, variola, and scarlatina, &c. I think that is somewhat of an error; nevertheless, at the onset of a rubeola, &c., the child has a slight convulsion, preceded by a little cry, and throwing back of the head; and a minute after, he returns to himself, and takes the breast. Such convulsions usually cease of themselves, and if treatment be adopted for them death will usually be the result. If the convulsive state is reproduced, we usually observe what the nurses call "inward convulsions." The infant is panting, closes and reopens its eyes, a slight guttural *râle* is heard, and the child becomes red and goes off to sleep again,—it is an epileptic vertigo.

However much the convulsions observed during the attack of epilepsy and eclampsia may resemble each other, their continuousness in the latter presents a ray of light for the diagnosis. The attack of epilepsy is of short duration, and when the attacks succeed each other so rapidly that there is not time enough for the patient to recover from the stupor of one before another comes on, we still observe that, whenever the carus commences, the muscles cease to be convulsed, and fall into a state of complete resolution. Such cessation is not observed in eclampsia. During one, ten, twenty, or thirty hours, the patient remains with the eyes convulsed, the head thrown back, and the limbs rigid, without any period of carus with resolution manifesting itself;

so that we may define eclampsia as (and it is an excellent sign of distinction) a continuous tonic or clonic convulsion. Nevertheless, it does occur, though very exceptionally, that epilepsy assumes this continuous form in children. It then depends upon some cerebral lesion, as, for example, tubercles, which become the cause of a cerebral phlegmasia, amidst which the convulsions assume the character of continuousness characteristic of eclampsia.

The two affections are, indeed, so nearly allied to each other, that we too commonly see eclampsia transformed into epilepsy. Thus, we find children suffering from frequent convulsions during dentition; then, again, on the occurrence of some disease, as rubeola, visceral phlegmasia, &c.; after some years these recur from some insignificant cause, and at last without any cause at all. These children, at first eclamptic, have become epileptic. Moreover, in the families of epileptic patients, convulsions or eclampsia are of frequent occurrence. As a practical rule, when you see convulsions in a child accompanying dentition or an acute affection, do not be needlessly uneasy; but when they occur towards the fifth or sixth year from the slightest cause, and especially without any cause at all, you should entertain the greatest fear that the child is epileptic.

Nature of the Disease.—What is epilepsy? This is a question it is very difficult to reply to in a categorical manner. It is ranged among the Neuroses, a class of diseases in which we find affections widely separated from each other as regards their importance and gravity, but which are united together by the common tie that they are dependent upon a special condition of the nervous system, in which pathological anatomy demonstrates nothing or next to nothing. When a woman is suddenly seized with a fit of hysteria, we know well that she has no organic lesion of the encephalon, some congestion being the utmost to be expected. When in the equatorial regions, tetanus carries off children after slight wounds, pathological anatomy discovers nothing. When, after a surgical operation, your patient dies, the subject of delirium tremens, do you suppose minute necroscopic researches will explain to you the cause of that condition? When we observe eclampsia attacking children at the onset of an eruptive fever, we are certain that, one hour before the appearance of the convulsion, there was no disturbance, no appreciable lesion of the nervous system; and we are certain that the eclampsia has left no traces after its disappearance. Still there must be something there, but what that something is we know not.

Many of these neuroses are under the dependence of an accidental pathological condition: thus, eclampsia may be dependent upon albuminuria, and the convulsions of children on dentition, &c. In epilepsy there are two kinds of conditions concerned in the production of the attacks, the permanent and the accidental. These latter have really no influence, save in relation to the former, which constitute the diathetic state, and maintain the individual always in such a condition

that, with or without occasional cause, he may be seized with a fit of epilepsy. We may often say of two men, in one of whom the skin appears healthy, and in the other the articulations are quite free, that the first is dartrous and the other gouty, because we have known the one suffer from cutaneous eruptions and the other from attacks of gout; and this is correct, for they do not escape from the necessities of the diathesis, because they do not then exhibit its effects. So we term a man an epileptic even when the attacks are absent. The diathesis remains none the less with its character of fatality, whether the manifestation occur on the skin, in the joints, or consist in nervous disorders. The influence of this constitutional condition does not, however, exclude that of local causes, which indeed may provoke manifestations. But it is always the diathetic condition that determines the form of the accidents. Thus, supposing two patients suffer from a syphilitic or tubercular cerebral affection, if one of these possesses the epileptic diathesis, the symptoms will be those of epilepsy, while the other will exhibit the ordinary symptoms of the cerebral affection.

Treatment.—Although the reputation of incurability attaching to this disease is but too generally justified, this is not invariably the case. In endeavouring to relieve it we must, firstly, try to ascertain whether any occasional cause exist, and direct our means against this. Several cases are on record in which epilepsy, induced by tertiary syphilis, has yielded to anti-syphilitic remedies. A case of this kind occurred in M. Trousseau's own practice, in which, after various means of combating the epilepsy had been tried in vain, the existence of severe nocturnal pain on one side of the head, fortunately led to the supposition of the possibility of intra-cranial syphilitic depositions, and to the cure of the patient.

Secondly, when no occasional cause to which we can refer the manifestation of the disease, is discoverable, we must attack the manifestation itself, just as, in neuralgia of unknown origin, we attack the element pain. Valerian, so much praised by Tissot, for this purpose, constantly fails, as do indigo, Prussian blue, &c. The salts of copper have perhaps, been somewhat more successful. M. Herpin, a very estimable physician, declares he has obtained good results from the oxide and the valerianate of zinc, but Esquirol had already tried these means without success, and I have been no more fortunate than my master. M. Debreyne, physician to La Trappe, and M. Bretonneau, undertook, twenty-five years since, in two different parts of France, a series of patient researches into the results furnished by belladonna, already recommended by Storck; and founding their opinion upon some cases which seemed conclusive, proclaimed the superiority of this therapeutical agent; unfortunately, such superiority is only relative. For twelve years I have employed it, having always had under treatment from eight to ten persons. In some of these patients the belladonna has completely failed, in others it has produced some melioration, while, in some cases, these being, it is true, the smallest number,

the greatest advantage has been derived from its use. I have so treated 150 patients, and of this number 20 have been cured, if they do not even yet relapse ; and M. Blache has employed it during the same period in his large private practice, with a like proportion of success and failures.

The mode of administration plays a great part in this medication, at which we need feel no surprise, as this is the case with the most powerful specifics. Thus Torti declared, with justice, that a pound of bark, administered without method, would not cut short a fever that two ounces, properly given would cure. Pills are to be formed, composed of extract and of powder of the roots of belladonna āā one-seventh grain. A pill is to be given every night for a month, and two pills every night during the second month. For the third month, three pills, and for the fourth month, four pills are required ; the entire number, whatever this may be, always being taken as one dose. If we find the patient is very susceptible to the action of belladonna, we must only increase the dose every sixtieth day. During all this time, the family must keep a register, in which are entered the number and nature of the fits or vertigos ; and if by the end of a year you have obtained a sensible diminution in the number and duration of attacks, you may reckon with certainty on the cure, providing the medicine be continued from two to four years, the dose not being increased after the physiological action of the drug is sufficiently manifested. We must not be surprised at this lengthened period of treatment, for such is necessary in almost all chronic affections. Before ceasing its administration entirely, and especially if it is borne with difficulty, it may be suspended for two or three, and then for four months, resuming it for a month, and in a diminished dose.—*Med. Times and Gazette, Aug.* 25, 1855, *p.* 181.

18.—UNSUCCESSFUL RESULTS IN THE TREATMENT OF EPILEPSY BY THE COTYLEDON UMBILICUS.

By Dr. Peacock, St. Thomas' Hospital.

Such widely-different and even contradictory reports have been published respecting the power of the cotyledon in cases of epilepsy, that we deem the recording of all evidence respecting it important. No large series of trials of it has been made in any of the London hospitals, but the four following cases, which have just been treated by it in St. Thomas's, constitute a quota of fact which must not be neglected. In all the treatment was very carefully conducted, and, as the subjoined statements respecting them are necessarily very much abbreviated, it may be well to state, that the detailed notes show conclusively that in all the disease increased rather than otherwise under it.

Case 1.—*Liability to Epilepsy for six years.*—Two months' trial of

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the Extract of the Cotyledon.—No benefit.—Thomas Byrnne, aged 13, was admitted as an in-patient on Oct. 4. He was a boy of somewhat heavy aspect, and had been subject to epileptic fits for six years. The occurrence of the paroxysms had been very variable as to frequency, sometimes being daily, at others being absent for periods of three weeks or more at a time. Giddiness was usually the symptom premonitory of an attack; sometimes he would utter a loud cry, and fall down quite unconscious; at others the loss of sensibility would be only partial. His appetite was good and bowels regular.

Dr. Peacock commenced the treatment by the exhibition of sulphate of zinc in two-grain doses, in infusion of valerian, three times daily. The remedy was gradually increased in dose until it amounted to a scruple, and was continued up to Nov. 21. No benefit was apparent, and during the last week of the treatment the fits had been of daily occurrence. A fortnight's interval having been allowed without medicine, the cotyledon was prescribed on Dec. 12. It was first given in two-grain doses, then in four, and ultimately in twelve, thrice daily. The fits continued throughout its use to recur just as before, and after a patient seven weeks' trial it was abandoned, and the lad allowed to return home, being in the same condition as when admitted.

Case 2.—Epilepsy.—Three months' trial of the Extract of Cotyledon.—Aggravation of Symptoms.—William Parnell, a small, delicate boy, aged 9, came first under treatment as an out-patient on Sept. 14, 1854. He was stated to have had fits when he was five weeks old. He did not again suffer for three or four months, and continued occasionally to have them till he was three years of age. He then had them more frequently, and had continued subject to them ever since. They generally occurred about once a fortnight, and when he had the attacks they continued to recur at frequent intervals for ten days, when they again ceased for an interval of about a fortnight. When about to be seized he felt a peculiar sensation in the epigastrium, which rapidly extended to the throat, and he then became insensible and convulsed. He also suffered from itching at the anus. The treatment then adopted, consisted in the exhibition of the sulphate of zinc in the infusion of valerian. The dose of the zinc was at first two grains, three times a day, but during the course of two months it was gradually increased up to fourteen grains, in which quantity it occasioned nausea, and had to be discontinued. The effect seemed to have been on the whole, beneficial; the paroxysms which at first had averaged eight or nine daily having diminished latterly to two or three. In consequence of the boy complaining of irritation about the anus, worms had been suspected, and a dose of turpentine given, but without the expulsion of any.

The use of the zinc was discontinued on Nov. 21st, and that of the cotyledon commenced on Dec. 7th. The latter remedy was continued in four-grain doses, three times in the day, until January 4th, when

its dose was increased to six grains. No obvious effect had been produced by it.

During the week ending the 11th, he had fourteen fits. The cotyledon was increased to eight grains. In the week ending the 18th, he had eight fits, and in that ending the 25th seven fits. The cotyledon was given in the dose of ten grains. In the week ending February 1, he had five fits. The cotyledon was raised to twelve grains. In the following week he had seventeen fits. The dose of the cotyledon was continued on the 15th. He had had only one fit during the previous week. The cotyledon was now discontinued. No improvement had taken place during its use, nor had any physiological action been manifested. The only symptom observed was some pain and difficulty in making water, but this had previously been noticed, and continued after the drug was discontinued, though to less and less a degree than when it was taken. His mother thought he was better while under the use of the sulphate of zinc, and therefore, after a month had elapsed, during which he was left without any specific treatment, and the fits continued to recur much as before, the sulphate of zinc was again given, and continued from the 22nd of March to the 24th of May, the dose being increased during this time to the extent of eighteen grains three times a day, but without any material alteration. He then ceased attending.

Case 3.—Four years' liability to Epilepsy.—Slight benefit from the Sulphate of Zinc.—Three months' trial of the Cotyledon.—No benefit.—W. C., aged 15, was admitted an out-patient of St. Thomas's Hospital, under the care of Dr. Peacock, in the month of November, 1854, suffering from epilepsy. It was stated that he had had fits during infancy, but they had ceased and he continued free from them, though suffering from "fulness of blood in the head," till four years before the time at which he applied at the hospital. He generally had from five to seven attacks each week, and had occasionally had as many as fourteen, but sometimes he was entirely free from them for intervals of from three to six weeks, and they then recurred more numerously and severely than usual. He stated that he felt dizzy for a minute or two before the fits came on. He had a fatuous expression of countenance, spoke hesitatingly, and had a large head. After having taken some aperient medicine he was directed to take the sulphate of zinc in infusion of valerian, three times a day, commencing with doses of two grains and gradually increasing them to fourteen grains. On the 22nd of March, 1855, though he had the fits somewhat less frequently and severely, he had experienced no decided benefit; he was, therefore, directed to take the cotyledon in doses of two grains, three times daily. On the 29th he had had only one fit during the previous week, and the cotyledon was increased to four grains. In the week ending April the 5th he had two fits. The cotyledon was directed to be given in doses of six grains. In the week ending April 12, he had been entirely free from the fits; the cotyledon to be given in doses of eight

grains. In the following week he had four fits. The cotyledon was increased to ten grains. In the week ending April the 26th he had three fits, and one of these was stated to have been more severe than any which he had had since the commencement of his attendance at the hospital. The cotyledon was directed to be taken in twelve-grain doses. In the week ending March the 7th he had seven fits, all unusually severe. The cotyledon to be given in doses of fifteen grains. On May the tenth he was stated to have had four fits during the previous week, two severe and two slight. To take twenty grains of the cotyledon for a dose. In the weeks ending May the 17th, 24th, and 31st he had no fits, and the cotyledon was increased, first to twenty-five and then to thirty grains, three times daily; but it was afterwards ascertained that these doses were only taken for four or five days during each week, when, in consequence of the supply being defective, he was without any medicine for the other two or three days. In the week ending June the 7th he had two fits, and in that ending June the 14th nine fits, though during the whole of this time he has been taking half a drachm of the cotyledon three times a day. He then stated he did not consider himself any better, and ceased attending. During the time he took the cotyledon his bowels were generally confined, so that he required occasional aperients; his appetite was at all times defective, but he digested food fairly and had no pain, sickness, dyspnœa, or other symptom which could be referred to the action of the remedy.

Case 4.—*Recent Liability to Epilepsy.—Three months' treatment by the Cotyledon.—No benefit.*—Edward Pugh, aged 13, was admitted an out-patient of St. Thomas's Hospital under the care of Dr. Peacock, on the 4th of January, 1855. He was a pale delicate-looking boy, and suffered from difficulty of breathing, cough, and other symptoms of affection of the chest. During the first week after his attendance he had five decided attacks of epilepsy, and it was then ascertained that he had for some months been subject to sudden fainting-fits, and had always been in the habit of "working his face about." In the week ending March the 1st he had five fits, in those ending March 8th, 15th, 22nd, and 29th, nine, fourteen, seventeen, and four fits respectively. During this time he had been taking quinine and iron, with an anodyne for the relief of the cough. On the 29th of March he was directed to take four grains of the cotyledon three times daily. In the following week he had thirteen fits, one very severe, lasting two hours; the cotyledon was increased to six grains. In the week ending April 12th, he had eleven fits; the cotyledon was directed to be given in doses of eight grains. In the week ending April 19th the fits were ten in number; ten grains of cotyledon were to be taken for a dose. In the week ending the 26th he had seven fits; the cotyledon was increased to twelve grains. In the week ending May the 3rd he had five fits; fourteen grains of cotyledon were directed to be taken. In the week ending the 10th

he had four fits ; the cotyledon to be increased to eighteen grains. In the following week he had two fits, and the dose of the remedy was raised to twenty-two grains. In the week ending May 24th he had three fits ; the dose of cotyledon to be twenty-five grains. In the week ending May 31st he had five fits, and in that ending June 7th, ten fits, the dose of cotyledon being continued at twenty-five grains. In the last week the fits were of unusual severity, and in some of them he continued two hours. The dose of cotyledon was increased on June 7th to ʒss., and in the following week ending June 21st he had six fits. After this, as there was no apparent remedial power exerted by the drug, it was discontinued and he was placed upon the oxide of silver. In the three following weeks he had six fits, one fit, and ten fits respectively. During the time he took the cotyledon he required occasional aperients, but no other obvious symptoms resulted from its use.

The extract used in the above cases was proposed by Messrs. Pigeon, and the dose usually exhibited was from 3 to 6 grains three times daily. In all the cases, the greatest care was taken to detect any effects which might result from the use of the medicine, and in none were any symptoms observed which could be referred to its action, though, in the the last two cases, the doses employed were very large, and the medicine was tried for several weeks. In one case, the increase of the dose corresponded with a temporary improvement in the patient, by being for three weeks without any fit, though generally they had occurred in greater or less number every week ; but a perseverance in the use of the medicine showed this improvement was only coincident, the fits again recurring as frequently and as severely as before ; and it was further ascertained that similar cessations had previously been observed for even a longer period. In the three cases, which had before been treated with the sulphate of zinc, the patients and their friends all considered that they were better while under that treatment than when the cotyledon was exhibited.—*Med. Times and Gaz., Aug.* 11, 1855, *p.* 133.

19.—NEW METHOD OF TREATING NEURALGIA BY THE DIRECT APPLICATION OF OPIATES TO THE PAINFUL POINTS.

By Dr. Alexander Wood.

[It is well known that morphia has for some time been employed endermically in these cases, by blistering different points in the course of the nerves, and dressing the blistered surface with morphia ointment: this method will often succeed; but still if the narcotic can be applied more directly to the nerve affected, it will be attended with corresponding advantages.]

Having occasion, about the end of 1853, to endeavour to remove a

nævus by injection with the acid solution of perchloride of iron, I procured one of the elegant little syringes, constructed for this purpose by Mr. Ferguson of Giltspur Street, London. While using this instrument for the nævus, it occurred to me that it might supply the means of bringing some narcotic to bear more directly than I had hitherto been able to accomplish on the affected nerve in neuralgia. I resolved to make the attempt, and did not long lack opportunity.

Miss ——, an old lady, who had long laboured under gastric and nervous symptoms, had suffered severely for four days from cervico-brachial neuralgia. This lady had the idiosyncrasy of not being able to take opium. Of this she had warned me many years before, when she first came under my care, and I consequently never prescribed it for her; however, once, when she was seen with me by the late Dr. J. H. Davidson, he, disbelieving her former experience, prescribed opium, with the effect of bringing on a severe fainting fit.

The narration of her case may date from Nov. 26th. She had not been able to sleep for the three previous nights from the violence of the neuralgic pain, and was quite exhausted with severe suffering. The usual internal remedies, with the exception of opium, had been tried, but without the least alleviation of her agony. Under these circumstances, I resolved to put in practice the plan which I had so long revolved in my mind.

Accordingly, on Nov. 28th, I visited her at 10 p.m., to give the opiate the benefit of the night. Having ascertained that the most tender spot was the post clavicular point of Valleix, I inserted the syringe within the angle formed by the clavicle and acromion, and injected twenty drops of a solution of muriate of morphia, of a strength about double that of the officinal preparation.

In about ten minutes after the withdrawal of the syringe the patient began to complain of giddiness and confusion of ideas; in half an hour the pain had subsided, and I left her in the anticipation of a refreshing sleep.

I visited her again about 11 a.m. on the 29th; was a little annoyed to find that she had never wakened; the breathing also was somewhat deep, and she was roused with difficulty. Under the use of somewhat energetic stimuli, however, these symptoms disappeared, and from that time to this the neuralgia has not returned.

The result of what has been stated proves satisfactorily,—

1st, That medicines are more rapidly absorbed by some tissues than by others.

2nd, That the stomach is by no means the most rapid way of introducing medicines into the system.

3rd, That the cellular tissue has a great power of absorption.

It has been further shown by Dr. Christison, that the whole amount of difference is not to be explained by the rapidity with which absorption goes on, but is to be ascribed in part to the poison being more liable to decomposition in one tissue than in another. Thus, many

remedies are much changed in the stomach, where the powers of assimilation are very strong, and the action of absorption slow.

We are thus conducted to this point of the enquiry. Have we no means of introducing medicinal agents very rapidly into the body, in a situation where they will not be readily decomposed, and where. in certain cases, we can secure at once their local and their remote effects?

The value of such a method of procedure, in many diseases, will be apparent. We shall instance but one—neuralgia.

In neuralgia we have usually a general and a local affection, a morbid state of the system, arising from many causes, displaying various symptoms, requiring varied treatment, and existing in states of the body the most opposite; a local affection, occurring in paroxysms of violent pain, either regular or irregular, plunging like electric shocks along the course of the affected nerve, ceasing, either to be suspended for a time, or immediately to recur with still more unbearable violence.

An affection presenting characters such as have been described, would appear to demand at once a local and a general treatment;—a local treatment directed to, and intended to mitigate the fearful anguish, under which the patient is well-nigh driven to despair; a general treatment intended to correct the "*habitus neuralgicus*" on which it depends, and having reference to the causes from which it has arisen, the state of the system in which it exists, and the diseases with which it may be associated.

There are other circumstances in the history of neuralgia which seem to point at, and to give peculiar facilities to local treatment. It is admitted on all hands that the *superficial* nerves are of all others the most liable to the disease. It has further been shown by M. Valleix that some points in the course of the nerve are more liable to be affected than others, and that these points are frequently the very ones where the nerve is most superficial.

Further, these points can almost always be detected in the course of the disease from their extreme tenderness on pressure. Even in the intervals between the paroxysms, very slight pressure on these points is sufficient in many cases to excite severe suffering, although, in some exceptional cases, firm pressure may be applied without exciting any complaint.

The plan of local treatment which M. Valleix proposed was the application of a succession of small blisters over the points in the course of the nerves which are painful on pressure, and in all his cases it seemed to alleviate the symptoms.

The plan of blistering is not new, but for the application of it to the tender points we are indebted to M. Valleix, and that author has effected an immense improvement in practice by showing where our local treatment, whatever that may be, ought to be applied.

Our own experience has not confirmed the value of simple blisters,

and we prefer following them up by the endermic application of morphia.

Two strong objections, however, apply to blistering, or the endermic application of narcotics in this disease—

1st, The painful nature of the remedy.

2nd, The mark which it often leaves, which is very objectionable when the disease is seated in the nerves of the face.

Various methods of applying narcotic or other remedies more directly to the seat of the disease have been introduced. Thus we have—

1st, The *enepidermic method*, in which the agent is simply applied to the surface of the skin.

2nd, The *Iatraleptic*, in which the absorbents are stimulated by friction to take up the agents which are presented to them in solution or in a minute state of division.

3rd, The *endermic* proposed by MM. Lembert and Lesieur, in which the obstacle which the epidermis offers to the entrance of the remedy is overcome by previously removing it.

4th, *Inoculation*, which, largely practised for the introduction of small-pox and cow-pox into the system, has been proposed by M. Lafargue St. Emilion, to be extended so as to secure the application of remedies. This method was brought before the Westminster Medical Society in Feb. 1837, by Dr. Bureaud, but from the account given in the 'Lancet,' he does not seem to have been very successful, as only a slight local effect was produced. A report was made by M. Martin Solon, for the Academy of Medicine, on this method of inoculation by morphia, proposed by Dr. Lafargue, which report comes to the somewhat damaging conclusion that the effect produced was very much the same, whatever agent was inoculated, even when the experiments were made with agents as dissimilar as belladonna, strychnine, the gastric juice, chyme.

From all this it is plain that we are still in want of a method of directly applying sedatives to the affected part, and that could such a method be suggested its value would be enhanced, could this be done almost without pain, and in a manner calculated, at the same time, powerfully and rapidly, to affect the general system.

Of the value of such an application locally to the nerve affected, no one can be in doubt who calls to mind the result of the experiments instituted by Müller, which clearly shows that, to quote his own words, "narcotic poisons," when applied locally to nerves, have only a local effect. I held the nerve of a frog's leg which was separated from the body in a watery solution of opium, for a short time, and that portion of the nerve lost its irritability, but below the part that the poison had touched the nerve still retained this function; *opium, therefore, produces* a change in the nervous matter itself, but the influence is local.

Again, every one who has seen much of neuralgia is aware that, on the one hand, the pain, acute and agonising as it is generally, subsides spontaneously after some time; that on the other, opiates administered through the ordinary channels, are usually some hours in taking effect, so that, if this class of remedies are to be of use at all, it must be an immense advantage to secure—

1st, A local effect, applied *directly* to the affected nerve.

2nd, A remote effect, ensuing almost *instantaneously* on the application of the remedial agent.

I think we may safely arrive at the following important conclusions regarding it from the cases which I have submitted—

1st, That narcotics injected into the neighbourhood of the painful point of a nerve affected with neuralgia, will diminish the sensibility of that nerve, and in proportion diminish or remove pain.

2nd, That the effect of narcotics so applied are confined to their local action, but that they reach the brain through the venous circulation, and there produce their remote effects.

3rd, That in all probability what it is true in regard to narcotics would be found to be equally true in regard to other classes of remedies.

4th, That the small syringe appears a safe, easy, and almost painless method of exhibition.

5th, That destitute as we are of any precise experiments as to the applicability of cellular tissue as a medium for the reception of medicinal agents, the experiments made with the syringe shows that it seems to offer an excellent surface for the absorbent action of the venous system.—*Edinb. Med. and Surgical Journal, April*, 1855, *p.* 266.

20.—*On Digitalis in Neuralgia.* By JUNIUS HARDWICKE, Esq., Rotherham.—[Occasionally we meet with cases which defy all usual remedies. The value of digitalis is not generally known, given internally it is most successful in such cases.]

Several years ago, having been completely beaten by the case of a parish patient (and not knowing where to look next for some means of giving relief to the sufferer) who had just entered my surgery in the greatest agony, his eye watering, his cheek hot, pulse excited, etc., —I was induced to try some digitalis powder, which I had carefully prepared according to Pereira's directions, to subdue the increased nervous and arterial action of the part. He took half a grain in the form of pill every three hours, and came next day expressing great delight at his improvement, and begging some more of the pills, which he continued until he was cured.

Since this time, I have always used powdered digitalis in such cases with the happiest results, and have even prescribed it in cases where there was much debility, and where I much feared its depressing

effects, without any dangerous symptoms. I have, however, more than once thought it prudent to suspend its use for a time before the pain was completely removed; and frequently I have found it necessary to produce a decided impression on the heart; but, in most instances, relief was obtained without using it so freely. The pills have obtained such repute amongst my patients that they often apply to me for my "*tic pills.*"

I have used this medicine in a great many cases of spasmodic and rheumatic neuralgia of the face; and, during the late spring, the many cases of this kind which have occurred have given a very fair trial of its efficacy. In the case of neuralgia of the arm, I tried it with decided benefit.—*Association Med. Journal, June* 1, 1855, *p.* 512.

ORGANS OF RESPIRATION.

21.—ON INJECTION OF THE BRONCHIAL TUBES AND TUBERCULAR CAVITIES.

By Dr. Horace Green, New York.

[There has been much discussion lately respecting the propriety and possibility of applying topical remedies to the larynx and trachea. Two of the most distinguished men in Europe have recently emphatically denied the possibility of passing a sponge-armed probang into the larynx and trachea. Professor Erichsen says that, from repeated experiments, he has no hesitation in expressing his conviction that the sponge has never been passed, in the living subject, beyond the true vocal chords; Professor Trousseau also declares that the passage of the sponge probang into the larynx either in the living or dead subject, cannot be accomplished. We shall now proceed to give the most important parts of Dr. Horace Green's paper, as we find it in the 'American Medical Monthly Journal:' and we must here take the liberty of saying, that few things have pleased us more than, in the course of our reading lately, to find such a surprising improvement in the periodical literature of our transatlantic cousins. The American journals which we have read lately abound in the most valuable and original articles, and show the rapid strides which our friends are taking to compete with the mother country. We need only add, that they have our best wishes: we watch their progress with the greatest pleasure. Dr. Green proceeds to say:]

I shall now give the proof, not only of the practicability of this operation, which has been so positively denied, but of our ability, as Americans, to accomplish still more than this for the treatment of thoracic diseases; to perform operations of which the conservative Englishmen and sceptical Frenchmen have never dreamed!

When Dr. Marshall Hall came to this country, he held and expressed the same opinion that Erichsen now entertains with regard to this operation; for, when assured by Dr. Brainard of its practicability, he declared that "the passage of a sponge wet with the caustic solution into the larynx and trachea, as proposed, would prove fatal to animal life," and yet, Dr. Hall was willing to see the attempt made, for he visited my office for this purpose, where he had an opportunity of witnessing its accomplishment in many instances, and it was he who suggested the employment of a tube, that the truth of its positive introduction into the larynx might be established, as it would be should the passage of the air be effected through the tube when in this position. After learning, therefore, these views of Professors Erichsen and Trousseau, I procured several of Hutchings' flexible tubes, of different sizes, and to the extremity of one of these, which is thirteen inches in length, I attached a sponge of the same size with those which are used with the ordinary throat probang.

At this time I had under treatment many patients having disease of the air passages, into whose larynges and trachea I had passed (as I believed) the sponge-armed probang in many instances. But, as other proof besides my own opinion and belief was necessary to establish this in the estimation of many, I selected one of these patients, an intelligent clergyman from Canada, and wetting the sponge at the extremity of the flexible tube in a strong solution of nitrate of silver, I passed it down to the vocal chords, through the rima-glottidis (as I supposed), and several inches into the trachea; then withdrawing the wire from the tube, I directed the patient to close his lips and blow, and breathe through the tube. This he did for several moments, filling and emptying the chest of air repeatedly. A lighted lamp was then brought, and this he extinguished promptly, several times, by *blowing through the tube!* This experiment was performed on the 5th of October, in the presence of several physicians.

But as it was intimated by one of the medical men present that it might be averred, by those sceptical on this subject, that the light was extinguished by the air passing through the nostrils, or by the side of the tube, another patient was selected for repeating the experiment. This gentleman was the Rev. Mr. McAnn, the superior third of whose epiglottis could be seen easily by depressing the tongue. Upon the laryngeal face of this cartilage, the extremity of the tube was placed, and introduced readily through the chink of the glottis into the trachea. This operation was also performed in the presence of several physicians, among whom were Dr. Sims, Professor E. H. Parker, and several others. The instrument being thus introduced, one of the physicians closed the anterior nares of the patient, and the light was again extinguished by the expired air through the tube. A large pasteboard card, perforated in the centre, and of sufficient size to screen the nose and mouth completely, was then slipped over the tube, to which it fitted closely; and the patient directed to blow

out the light, which was accomplished through the tube as promptly as in the first instance. After all this, Mr. McAnn was requested to expand the chest, by breathing through the instrument. This was several times performed—the patient inhaling and exhaling easily and freely through the inserted tube. These experiments were subsequently repeated on some eight or ten patients, always with the same results, and in each instance in the presence of several medical men. Among those physicians who were present on one occasion or another, I may mention the names of my colleagues, Professors Barker, Davis, Peaslee, and Parker; Dr. Bowditch, of Boston; Professor Davis, of the University of Virginia; Crawcour, of New Orleans; Smith, of Galveston, formerly surgeon in the army of Mexico; Rose, of Indiana; Patterson, of Ohio; Sims, Sayre, and Minor, of New York; and more than forty other physicians of this and other cities, every one of whom expressed himself satisfied with the success of the experiments, as proving the introduction of the instrument "between and beyond the true vocal chords" into the trachea of the patients. In order to test, still further, the truth of the operation, a small air-tight, elastic bag was tied over the upper extremity of the tube, and on introducing the nstrument, six or eight inches into the trachea of a gentleman, this little bag was inflated and collapsed a dozen times, by the acts of inspiration and expiration on the part of the patient. In performing this last experiment, an incident occurred, (which, had the tube been shorter, might have proved an accident,) that is an additional proof of the position of the instrument. The tube which, as I have stated, is thirteen inches long, was introduced its whole length, so that the upper extremity was flush with the lips of the patient, the elastic bag, which is three inches long, only remaining out of his mouth. After the patient had filled and emptied the sac several times, I let go, for a moment, my thumb and finger hold of the extremity of the tube. Just then the patient made a strong inspiration, when the whole instrument, sac and all, was drawn suddenly in, and for a moment disappeared out of sight. Thrusting my fingers immediately into the throat of the patient, I could barely reach, at the base of the tongue, the upper extremity of the bag, which I seized with my thumb and finger and drew the whole out together.

Other experiments, confirmatory of the above, were instituted, such, for example, as the suspension by a thread of a small ball of floss before the mouth of the tube, which was alternately drawn into and expelled from the opening by the act of respiration.

The above series of experiments were considered conclusive by those who observed them, in proving that the operation of passing the sponge probang into the larynx and trachea, as we have claimed, is positively being accomplished, and we submit to the members of the profession, whether the dogmatic assertions of Professor Erichsen, that "the sponge has never been passed, in the living subject, beyond the true vocal chords," and that the operation "is utterly impossible," has not been by these experiments disproved?

But we have declared it to be possible to do still more, for the treatment of thoracic disease, than can be effected by this operation, though its practicability be fully admitted. After accomplishing what has already been described; namely, that of introducing the elastic tube into the bronchial divisions; for it must have passed several inches into these, if it entered the trachea,—these questions occurred to my mind. What shall now hinder the introduction of medicinal agents, through this tube, into the lungs, or directly into the bronchi and their terminations? What will prevent the injecting, even of a vomica, under favourable circumstances, with appropriate remedies?

Having under treatment, daily, patients labouring under, not only chronic bronchial disease, but those affected with tuberculosis, in almost every stage of the disorder, I determined to test the effect of a solution of nitrate of silver, applied directly and freely to the bronchi in disease of their membrane; also, in disease of the lungs, to inject, if possible, the same solution into tubercular excavations.

The first trial of this nature was made on the 13th of October, 1854. It is unnecessary to give the previous history of this case, in which the operations of *catheterism of the air-passages* was first performed.

The patient, a lady from Connecticut, thirty-two years of age, is in the advanced stage of tubercular consumption; a large cavity exists in the apex of the left lung, and a deposition of tubercles is present in the right. All the physical signs of both these conditions are present; my own opinion has been confirmed by the examination and opinions of several good auscultators. She has had, for several weeks past, the treatment, both topical and general, ordinarily employed in the management of such cases. Once in two or three days, the larynx and trachea have been cauterized, and the iodide of potassium, with both vegetable and mineral tonics, have been administered, and with considerable benefit. But still, the signs of advanced tuberculosis are present. The cough and free expectoration of purulent matter continue.

Oct. 13th. To-day, instead of using the sponge probang, I passed No. 12 of Hutchings' elastic tubes (which is thirteen inches long) through the trachea, and into the left bronchial division. Through this tube, with a small glass syringe, I injected one drachm of a solution of nitrate of silver, of the strength of forty grains to the ounce of water, into the lung. No cough whatever, or any sense of suffocation, was produced by this operation, nor did the patient observe in the least the ordinary bitter taste of the solution. A few minutes after the operation she stated that she "felt a warm sensation" in the upper portion of the left lung, but no pain, or any unpleasant feeling whatever, followed the operation. Mrs. A. did not return to have the operation repeated until the 17th, four days afterwards, when she stated that for twenty-four hours after the use of the injecting tube, her cough and expectoration were both greatly diminished, that she

had breathed with more freedom than before; that these favourable symptoms had continued, though not as marked as at first, up to the present time. She was therefore much disposed to have the operation repeated. The tube was again introduced through the trachea its entire length, and at this time one and a half fluid drachms of the solution were thrown into the lungs. The immediate results were the same as at first, but after some minutes, she began to cough, and expectorated easily, and at once, nearly two ounces of purulent matter, changed in its colour and consistence, apparently, by its immediate contact with the argentine solution. Indeed, the expectorated matter presented precisely the appearance which is observed to take place with the purulent matter of an external ulcer when cauterized with the nitrate of silver. This changed condition of the expectoration was observed by several physicians who were present when the operation was performed. The relief which followed this last operation in Mrs. A.'s case was still more marked and decided than in the first instance. Her cough she stated was much relieved, the expectoration yet more diminished, and her breathing was easier. A pain in the chest of which she had complained was removed; and during the two nights which followed the operation her sleep was better than it had been for a long period before. Mrs. A. remained until the 26th, during which time the elastic tube was introduced into the left bronchial division seven times, and on each occasion from one and a half to two drachms of a strong solution of the nitrate of silver were injected into the lungs. Her improvement was constant. She grew stronger, and gained flesh in this period; but, being obliged at this time to return to her home, she left with the intention of coming back to renew the treatment, in a few weeks.

The same day on which I succeeded in introducing medication into the air-tubes of the above patient, I commenced in like manner the treatment of other cases, and since the thirteenth day of October, there have been treated, for a longer or a shorter period, thirty-two patients labouring under tubercular or bronchial diseases, by the direct introduction into the lungs of a strong solution of the nitrate of silver injected through the elastic tube. Of these thirty-two cases, nineteen showed unequivocal physical signs and symptoms of tuberculosis in the different stages of the disease; complicated, many of them, with bronchial inflammation. Thirteen of the number are cases of chronic bronchitis, the disease in some of them being of many years' standing. Of the nineteen cases of tuberculosis, nine of the number presented, on auscultation, the usual signs of the presence of tubercular cavities in one or both lungs. All these cases of thoracic disease, with one or two exceptions, appear to be benefitted, some of them greatly, by this method of topical treatment.

Although a rigid and circumstantial history of these cases, and of their treatment, is being kept by my assistant, Dr. Richards, I shall not detain the reader with a relation of them, but will merely select

a few whose history and sanitary condition, on coming under my treatment, were known to other medical men, for all of these cases to which I shall refer were committed to my care by their attending physicians.

The first case of which I shall speak, is that of Mrs. A., whom I first saw early in January, 1854, in consultation with a distinguished physician of this city, Dr. John W. Francis. She had suffered from chronic bronchial disease for several years; but her symptoms, from taking cold, had been greatly aggravated some few months before this consultation, and on examination at this time, there were revealed signs of extensive bronchial disease, with tubercular depositions in the apex of the right lung. Marked dulness, on percussion, was found under the clavicle on the right side, with crepitiating mucous râles and prolonged expiration, indicating the commencement of tubercular softening. On the left side puerile respiration, with coarse mucous râles over the whole chest. The disease seemed to have been preceded, or attended, by follicular disease of the pharynx; for the mucous crypts of the pharyngeal membrane were destroyed, and the right tonsil had become completely atrophied. Mrs. A. was feeble and much emaciated, and had a severe cough with large muco-purulent expectoration. After continuing the treatment of the patient for some time, in consultation with her attending physician, at his request I consented to take charge of the case, on condition that the patient should visit me at my rooms.

In addition to the ordinary general treatment, which it is not necessary to particularize, topical applications of the nitrate of silver to the pharyngo-largyngeal membrane were employed. These cauterizations were continued, at first three or four times a week, and subsequently twice a week during the remainder of the winter and the following spring. No diminution of the cough or expectoration occurred until the local treatment had been continued for several weeks. Gradually both improved; Mrs. A. gained in strength and flesh, so that when she left the city in June, to spend the warm season in the country, she had gained several pounds in weight, and, although the cough and expectoration still continued, both were greatly diminished. No marked change in the patient's symptoms occurred during the summer, but soon after her return to the city, at the close of the season, her pulmonary symptoms, from taking cold, or from some other cause, were aggravated, and her cough and expectoration were again increased. The treatment was renewed. Applications of the nitrate of silver were made to the larynx and trachea, which at once diminished, as before, the urgency of the the symptoms. On the 25th of October, I introduced the flexible tube through the trachea, and conveying it down the right bronchial division, injected one and a half drachms of the argentine solution, of the strength of forty grains to the ounce of water, into that side. As in the first instance described, the irritation was much less than

when the sponge-probang is used. Indeed, no cough or disturbance in any degree followed this operation. The effect on the prominent symptoms of the patient was very favourable. For twenty-four hours afterwards, the cough and expectoration were greatly diminished; nor did tightness of the chest, or any uneasiness whatever, follow the suppression of the discharge. On the contrary, the patient experienced so much relief during the subsequent week, that she did not return until the first of November, (one week afterwards,) to have the operation repeated. On this day, two drachms of the fluid were introduced; and thrice since, making five times in all, has the operation been performed. Mrs. A. has continued constantly to improve, and notwithstanding the unfavourable season of the year, has certainly gained more in the last six weeks, than during several months before. But what the ultimate result will be, it is of course impossible to pronounce. Of one thing we are positive, that Mrs. A. is in much better health now, than she was nearly a twelvemonth ago, at which time she exhibited unmistakable signs of tubercular exudation, complicated with general bronchial disease.

Some months ago, General P. of Niagara, having just returned from Europe, called on me with an invalid sister, bringing with them a letter from Professor Trousseau, of Paris, under whose treatment Miss P. had been, containing his full opinion of her case, and commending her to my care. The following is an abstract of the letter from Trousseau: "Miss P., whom I have examined with great attention, will hand you the consultation which I have given her. I think she has pulmonary emphysema, with chronic bronchitis, but I have not been able to find any of the signs of tubercular affection."

An attentive examination of this lady's case confirmed the opinion given by M. Trousseau. Extensive bronchial disease existed, with pulmonary emphysema—a complication which, I believe, is almost always more or less present in serious and prolonged bronchitis.

No treatment was adopted at this time, as Miss P. was on her way home, but she proposed to return in a few weeks, and have the treatment I had advised employed. But I saw nothing more of this lady until the 15th of last October, when her brother came with her to New York, and placed her under my care. Her case now presented symptoms more unfavourable than when I first saw her. She was emaciated and feeble; was harassed by an incessant cough, and had a most profuse muco-purulent expectoration. Auscultation now revealed, not only extensive chronic bronchitis, and pulmonary emphysema, but bronchial dilatation. In addition to an almost constant bronchial cough, she was subject, daily, to paroxysmal attacks of spasmodic cough, so severe at times as nearly to suffocate her. The local treatment, conjoined with appropriate general remedies, was adopted in Miss P.'s case. The applications of a solution of nitrate of silver were made daily, first to the pharynx and then to the larynx and trachea. Improvement in her case, began, as it almost always

does, in bronchial disease, as soon as the small amount of caustic fluid, which the sponge will take up, had been introduced a few times into the larynx and trachea. On the 4th of November, I employed, for the first time, in her case, the tube and syringe, and injected on this occasion, two drachms of the caustic solution into the bronchial divisions. The effect of this irrigation of the pulmonary mucous membrane, was, as the patient herself remarked, "perfectly astonishing." The cough and expectoration were both greatly relieved, the oppressive sensation about the chest, long complained of by the patient, was abated, and on her return to the office, three days after, she manifested improvement in every symptom.

The injections have been repeated every day and every other day up to the present time, and Miss P.'s improvement has been going on constantly. She is now much stronger; coughs less; has gained flesh in the last three weeks, and has exchanged her pale, sickly look, for one indicative of returning health. To-day, November the 28th, I injected for the sixteenth time, in her case, in the presence of Professor Davis, of the University of Virginia, Dr. Minor, of Brooklyn, and several other medical gentlemen, two drachms of a solution of the nitrate, of the strength of two scruples of the salt to the ounce of water, without producing the slightest cough, or any irritation whatever.

Of the thirty-two instances mentioned, of tubercular disease, it would not be difficult to select a dozen cases, from among those who have been the longest under this form of treatment, which have manifested signs of improvement as extensive, and decided, as have those cases to which we have referred. I shall, however, only allude briefly to one of these, the character and treatment of which has been observed, with much interest, by several medical gentlemen.

On the 21st of September, Dr. Varick, of Poughkeepsie, placed under my care a young lady from that town, who for several years had been afflicted with chronic bronchitis of a grave character. The disease began four years ago; commencing in the form of follicular inflammation of the pharyngeal membrane, and extended by continuity to the mucous membrane of the larynx and bronchi. The disease was attended with a loss of voice, an almost constant and harassing cough, and a profuse muco-purulent expectoration. Miss V—— presented many of the rational signs of tubercular consumption, but auscultation revealed only mucous and bronchial râles over both lungs, with vesicular emphysema and bronchial dilatation. There were no positive signs of the presence of tubercular exudation, although slight flatness, with prolonged expiration existed on the right side. Dr. Varick had employed in his treatment of her case, along with general remedies, the topical application of the nitrate of silver; but as he had not been able to medicate the larynx, and the patient was not relieved, he requested me to take charge of the case. I soon succeeded in cauterizing the larynx and trachea, both of which

were ulcerated, and after continuing the local treatment for two or three weeks, the voice was restored to nearly its normal condition, but the cough was not materially relieved, nor was the profuse bronchial expectoration in any degree diminished. A deep seated dull pain, under the sternum, which had long continued, and which had resisted the effects of counter-irritation, and other measures, still remained.

On the third of November, in the presence of several medical gentlemen, I passed the tube through the larynx and trachea, down to the bifurcation, and injected into the bronchial divisions, two drachms of a strong solution of the nitrate of silver. From this hour, her troublesome symptoms began to improve, the cough which heretofore had vexed her night and day was arrested completely, for a period of twenty-four hours, after this first operation; and what was equally surprising, the pain under the sternum, which had been so persistent, ceased altogether, and has not since returned.

On the second day she coughed again, but moderately, and expectorated with more ease than before. The injection was repeated on the 6th of November, and again on the 8th, and was attended, apparently, with continued advantage to the patient. The effect of the remedy was so prompt and decided in checking the profuse expectoration, that some fears were entertained by me, in this case, as well as in that of Miss P——, that unfavourable symptoms might follow the sudden suppression of such long continued and habitual drains. But in neither of these cases, nor in any one of those similarly affected and treated, have I observed any dyspnœa or oppression of the chest whatever, to follow the diminished expectoration.

Inasmuch, therefore, as the effect of the treatment in Miss V.'s case continued to be decidedly favourable, the operations were repeated every few days, throughout the month of November. During this time, she had added about ten pounds to her weight; her cough was nearly gone, her voice restored to its normal condition; and, as her whole appearance and symptoms were indicative of returning health, she was, on the first day of December, dismissed from further topical treatment.

In the treatment of the various chronic inflammations of the bronchi, I have been accustomed, for many years, to depend upon the topical application of a solution of nitrate of silver to the mucous membranes of these parts, and so uniformly has success followed its employment, that, as Erichsen has said of its effects on the pharyngo-laryngeal surface, I can affirm, that in my hands it has proved almost a specific in these diseases. Others who have given the remedy a fair trial, have borne the same testimony in its favour. Dr. Allison, of London, who has published an interesting brochure on the "Medication of the Larynx and Trachea," says: "In chronic inflammation of the larynx and of the upper portion of the trachea, the solution of the nitrate of silver has, in my hands, as in others, been very useful

in bringing the disorder to a conclusion, and where that has not been accomplished by reason of its dependence upon incurable disease of the lungs, it has almost invariably afforded very considerable relief, by rendering the cough less frequent and violent, and removing much of the tickling and uneasy sensations at the upper part of the larynx. In this form of disease the treatment is particularly suitable, whether it be simple or of a specific character. * * * * *

"In some cases of disease of the larynx and trachea, in which the symptoms inclined to the suspicion that ulceration existed, the same local application of nitrate of silver has been very useful. Old bronchial affections have in a large majority of cases been similarly benefitted."

Professor Bennett, of Edinburgh, in his recent work on Tuberculosis, thus speaks of the effects of this local remedy: "The action of the nitrate of silver solution is not that of a stimulant, but rather that of a calmative or sedative. It acts chemically on the mucus, pus, or other albuminous fluids it comes in contact with, throws down a copious white precipitate, in the form of a molecular membrane, which defends for a time the tender mucous surface or irritable ulcer, and leaves the passage free for the acts of respiration. Hence the feeling of relief almost always occasioned; that diminution of irritability in the parts, which is so favorable to cure, and why it is that strong solutions of the salt are more efficacious than weak ones.

"It may be easily conceived that such good effects must be more or less advantageous in almost all the diseases that affect parts so sensitive, from whatever cause they may arise; and that this treatment is not adapted to one or more diseases of the larynx, but, like all important remedies, meets a general indication which the judicious practitioner will know how to avail himself of." And he closes a work of great interest with the following "practical conclusions."

"1st. That not unfrequently diseases, entirely seated in the larynx or pharynx are mistaken for pulmonary tuberculosis.

"2nd. That even when pulmonary tuberculosis exists, many of the urgent symptoms are not so much owing to disease in the lung as to the pharyngeal and laryngeal complications.

"3rd. That a local treatment may not only remove or alleviate these complications, but that, in conjunction with general remedies, it tends in a marked manner to induce arrestment of the pulmonary disease."

Hitherto, in the treatment of bronchial disease, a difficulty has arisen from our inability to introduce, by means of the sponge-probang, a sufficient quantity of the caustic solution into the bronchial divisions; for in passing the instrument into the opening of the glottis, and through the rima of the glottis, much of the fluid is discharged from the sponge before it reaches the tracheal division. On this account I have, in a multitude of instances, when treating bronchial disease, introduced the saturated sponge, several times, at the same

sitting, in order to convey an increased amount of the fluid into the bronchi, and it has frequently happened, that patients observing its effects, have returned in a few days requesting that as much of the solution as possible be passed into the wind-pipe, as the cough and expectoration, they have declared, are invariably greatly improved by the operation.

By this method of catheterism of the larynx and trachea, the solution is not only conveyed with more certainty and directness to the bronchial mucous surfaces, but any amount of the medicament may, in this way, be introduced. What quantity of the solution may be the appropriate amount to be employed, in any given case; of what strength; how often to be repeated, or how long to be continued; are important questions, to be solved by future experience, and by repeated observations.

Of one interesting fact we are now fully assured, that whenever the remedy has been freely employed in the treatment of bronchial disease, the effects have been invariably salutary. Catheterism of the larynx and trachea has now been employed in my hands, in the treatment of more than twenty cases of chronic bronchitis—some of them of a very severe and protracted nature, in which from one to three drachms of a solution of nitrate of silver, of the strength of from thirty to forty grains to the ounce, have been injected every few days, in each case, through the trachea, into the bronchi; and in every instance, with not a single exception, improvement has followed the treatment. In those cases where tubercles exist, whether the exudation be in a crude state, or beginning to soften, the beneficial effects of the treatment have been, thus far, as uniform and certain, although the improvement has not been as rapid in these, as in the former cases. Most of these cases of tubercular disease are still under treatment, and the final result cannot be foretold.

In the employment of catheterism of the bronchi, by means of the flexible tube, and the syringe, repeated proofs have occurred of the presence of this tube in the trachea. The coughing of the patient before the injecting was completed, has often driven a portion of the solution, with force, through the tube, and to a distance of several feet from the patient. Several distinguished auscultators, who have been present when the operation was performed, have had the curiosity to examine the chest of the patients, both immediately before and after the operation, when they have detected regularly, by auscultation, the presence of the fluid in the lungs, immediately after the injection was made.

Of more than fifty medical men, comprising many distinguished physicians of our country, who, from time to time, have been present at these operations, all, *with one or two exceptions*, have been fully satisfied that these injections were, in reality, made, not into the œsophageal tube, but into the tracheal and bronchial divisions.

Among the patients who have been the subjects of this treatment,

is Dr. Pittard, an intelligent and experienced physician from North Carolina, who came to this city to be treated for a severe and long continued bronchial disease. The following is Dr. Pittard's testimony on this subject:—

"In compliance with your request, I give you a simple statement of the effect of an injection into my lungs of the nitrate of silver. The application of the remedy caused a considerable glow through the chest, which was felt for several hours. There was no irritation produced on the bronchial membrane, by the introduction of the fluid; but on the contrary, the cough was suspended, or greatly moderated for a day or two.

"It may be said that the injection passed into the stomach, instead of the lungs. This may have been possible in some other instances, but in my case there could be no doubt of its having entered the air-passages, for you will recollect that the breath was passed out through the tube, as soon as it was inserted, which may be considered conclusive evidence, besides, I tasted the nitrate of silver, in the matter expectorated for twelve or fifteen hours after the administration of the remedy.

"Very respectfully,

"Jno. Pittard, M.D."

In conclusion, it is here maintained, that the direct medication of the lungs, by means of catheterism of the air-tubes, an operation I believe not before performed, has been repeatedly accomplished—that the operation may be performed by the dexterous surgeon with ease and facility, and with perfect safety to the patient, and that the results of this method of treating disease, whether it has been employed in bronchial affections, or in the commencement of tuberculosis, have already afforded the most gratifying indications that practical medicine will be greatly advanced by this discovery.—*American Med. Monthly, January*, 1855, *p.* 11.

Since the reading of the above paper, there have been treated during the past two months many cases of thoracic disease, some of them of great interest, by this method of topical medication; and the success which has continued to attend this practice has served to increase greatly our confidence in this measure as a therapeutic agent. Although a history of all these cases treated would not fail to interest, I shall not detain the society with a relation of them, but will follow the plan I have before adopted, and only select a few of them whose history and sanitary condition, on coming under my care, and the result of whose treatment, are well known to other medical men.

Early in December, John B. Miner, professor of law in the University of Virginia, came to New York for medical treatment. He was accompanied by his friend and colleague, Dr. Davis, the distinguished professor of anatomy of the University of Virginia, by whom, in connection with Dr. Cabell, Professor Minor had been treated.

I saw him first on the fourth of December, 1854. Enfeebled by the journey, Prof. Miner was unable to leave his room for a week after his arrival in New York. It will not be necessary to detail minutely the previous history of the case. From the patient, and Dr. Davis, I learned that symptoms of thoracic disease, following chronic follicular disease of the pharynx, made their appearance nearly a year before. A severe cough, with debility, emaciation, and occasional hemoptysis, were the rational signs most prominently manifested in his case.

The following was observed to be the condition of the patient at the first examination. There is dulness on percussion at the apex of the right lung. During inspiration, the upper part of the right chest expands less than the left. Expiration, on this side, is prolonged, whilst the respiratory murmur is increased in force under the left clavicle. The "clicking ronchus" of Dr. Cotton, which is positively indicative of the existence of tubercles, is not observed, but numerous bronchial râles are heard on both sides. A severe cough, with large muco-purulent expectoration, which is occasionally streaked with blood, is present. The patient is very feeble, with loss of appetite, and a voice partially aphonic. Inspection of the throat revealed evidence of long-continued follicular disease; for the mucous crypts of the pharynx had disappeared, and the right tonsillary gland was entirely destroyed, and its place between the anterior and posterior columns was occupied by a large, deep ulcer. On looking into the throat this ulcer was entirely concealed by the anterior column, until this fold of the membrane was pushed aside by the finger. The uvula was elongated. At the request of Dr. Davis, and in consultation with him, I commenced the treatment of the patient. The elongated portion of the uvula was removed; applications of a strong solution of the nitrate of silver were made to the ulcerated portion of the throat and the pharynx, and the iodide of potassium, in combination with minute doses of the proto-iodide of mercury, was administered internally.

At the third application of the nitrate of silver solution, the sponge probang was passed into the larynx, and these operations were repeated daily until the 11th of December. Under this topical medication the ulceration in the throat was healed, and the acute sensitiveness, peculiar to the opening of the glottis, to which Erichsen alludes, was allayed. The cough was, also, to some extent, diminished; but this symptom was still severe, and the bronchial expectoration, and other thoracic symptoms, remained about the same as at first.

Confident, from the results which had followed the treatment in other similar cases, that the introduction of a larger amount of the caustic fluid into the bronchial divisions would be attended with greater benefit to the patient, I resolved to make the attempt to inject the lungs.

On the 11th of December, in the presence of Prof. Davis and several other physicians, I introduced number 12, of Hutching's flexible tubes, through the rima of the glottis, and carrying it down to the

right bronchial division of the trachea, I injected, with a small glass syringe, one and a half drachms of a solution of nitrate of silver, of the strength of thirty grains to the ounce of water, through this tube into the lung.

This operation was performed without producing any cough, except at the moment of the introduction of the tube into the opening of the glottis; nor did any feeling of suffocation, or any irritation whatever, follow the introduction of the solution into the chest.

On the 12th the operation was repeated, and the same amount of the caustic solution was injected into the bronchial tubes. On the 14th and 15th the larynx and trachea were cauterized by the application of the sponge probang to these parts, and on the 16th the tube was again inserted, and the bronchial divisions injected with nearly two drachms of the argentine solution. The cough and expectoration of the patient now diminished much more rapidly than when the probang only was employed. His appetite was restored, and his strength and general health improved daily. This operation of catheterism of the air tubes was continued until the 25th of the month, when Professor Miner considered himself sufficiently restored to health to return to his home and resume his duties as lecturer in the university. He had in this time gained several pounds of flesh; his cough and expectoration, which had harassed him for months, had disappeared, and from an enfeebled condition, which prevented him from walking the distance of one block without assistance, he had regained so much in strength and vigour, that for several days before he left New York he walked daily two or three miles without fatigue or inconvenience.

But what is equally interesting and important is the fact, that in an examination of the patient's chest, on the day of his departure for home (and this examination was made not only by myself, but by several good auscultators), it was found that the physical signs which were present at first had quite disappeared.

Still later, and only a day or two ago, I received a letter from Dr. Davis, in which he writes, "It will be gratifying to you to know that Professor Miner has not been compelled to suspend his lectures, or to omit his daily exercise since his return," for a single day.

During the same time in which Professor Miner was receiving medical attention, there was another patient being treated, the nature of whose case, its management, and the result of the treatment were observed with much interest by several medical gentlemen.

James Moore, of New York, aged 35, came under treatment September 24, 1853. In September, one year before Mr. M. began to lose flesh, debility, with a slight cough, soon came on. He had suffered occasionally for several years from chronic pharyngeal disease, and enlarged and diseased tonsils. But as this condition of his throat had occasioned but little inconvenience, no particular attention had been called to it until symptoms of thoracic disease made their appearance.

These continued to increase during the winter and spring of 1854. A severe cough, with subsequently a free, muco-purulent expectoration, constant emaciation and debility, were the prominent symptoms in his case; symptoms which gradually augmented in severity until the above period, the 24th of September, when he came under my care. At this time the rational signs which his case presented were those above named, together with dyspnœa, on exertion being made, and partial aphonia.

The physical signs were correspondent. Dulness on percussion, with crepitating râles were observed over a part of the right lung. Near the upper portion of this lung, strongly marked signs of tuberculous excavation were present. These physical signs were observed by several good auscultators.

The throat of the patient was in a diseased condition. The uvula was elongated, the follicles of the pharynx were inflamed and enlarged, and full of ulcerated openings, from which purulent matter exuded.

The diseased portions of the enlarged tonsils were removed, the uvula shortened, topical applications of the nitrate of silver were made to the pharynx, and were soon carried into the larynx and trachea, and the iodide of potassium, with tonic and supporting remedies, were administered.

This plan of treatment was continued (the applications being made twice and three times a week) until early in November, varied, so far as the general treatment was concerned, as circumstances seemed to indicate. During this time, the patient made some improvement; his voice was restored, his cough was in some degree lessened; but the amount expectorated in the twenty-four hours, remained about the same, and it was remarked that the patient continued gradually to emaciate. After consultation with some of my professional friends with regard to his case, it was concluded to employ catheterism, and to carry the point of the injecting tube, if possible, into the right bronchial division. This operation was performed first on the 13th of November, and nearly two drachms of the argentine solution injected into the right lung.

This operation was repeated once in two or four days, alternating the tube with the sponge probang, until the 15th of January. Within twenty-four hours after the first injection, both the cough and the expectoration of the patient began to diminish. He soon commenced to regain flesh and strength, and every unfavourable symptom continued gradually, and in comparison with what had previously occurred, rapidly to diminish.

On the 6th of January, along with my colleague, Professor E. H. Parker, I made a careful examination of the patient's chest. The respiratory murmur could be heard full and clear on both sides; prolonged expiration in one location was the only abnormal sign present.

January 25th, Mr. Moore called again and reported himself "quite well." He has no cough or expectoration, except some slight raising in the morning. He is quite strong and hearty, can walk any reasonable distance, and attends constantly to his ordinary business.

The question now occurs, and it is one of much interest, were these symptoms in Mr. Moore's case, the result of tuberculous exudation, and consequent softening of the tubercular mass; or did these signs, rational and physical, proceed from severe chronic bronchitis, and bronchial dilatation? The inception, progress, and symptoms of the disease, and the location of the apparent vomica, were certainly those belonging to tuberculosis. And Professor Bennett, of Edinburgh, in his recent work on tubercular consumption, has established undeniably the fact, that pulmonary excavations much more frequently than the profession generally are aware of, are both by nature and appropriate treatment permanently healed. If, therefore, these cavities can, by their location and their openings into the bronchial tubes, be in any case reached with the remedy, and in the manner proposed, have we not some reason to hope from our knowledge of the effects of this agent on ulcerated surfaces, that this consummation, so devoutly desired, may in some cases be attained?

That this local therapeutic agent will prove an efficient and valuable remedy in the treatment of chronic bronchial disease, can be established by the history of many cases in which it has already been successfully employed.

[The above extract is from a publication which fully confirms the good opinion which we have previously expressed respecting the American periodicals. Here is a journal of transactions, full of interesting and original matter, apparently printed at the expense of the State of New York.]—*Trans. of State Med. Society of New York*, 1855, *p.* 244.

22.—ON TUBERCULAR INFILTRATION.

By Dr. C. Radcliffe Hall, Physician to the Hospital for Consumption.

Rokitansky applies the term infiltration to yellow tubercle, which he considers to be formed in the cavities of the air-cells, whilst grey tubercle (according to him) is formed in the interstices of the pulmonary tissue. He uses the term interstitial as synonymous with grey tubercle; infiltrated as synonymous with yellow. Even were the anatomical facts correct (which I believe they are not), if we mean by infiltration the filtering of a morbid fluid into and amongst the elements of a texture, we should reverse this assignment, and call that tubercle infiltrated which was interstitial, rather than that which was only vesicular. In common use, the term infiltration of tubercle is vaguely employed to signify during life either the sudden supervention

of acute phthisis, or else any rapid addition to solidification in a lung known or suspected to be tuberculous, and in morbid anatomy, it is customarily applied to any consolidation of lung of which tubercle forms a part.

Under this designation have thus been comprised—1. The sudden pouring out of tubercle into multitudes of air vesicles, with intense congestion and sanguineous œdema of the whole lung (acute tuberculization). In this case, strictly speaking, the term is a misnomer; serum being infiltrated, tubercle restricted to the air vesicles. 2. One or other kind of simple inflammatory exudation extensively diffused around pre-existing tubercles. 3. A large mass of yellow tubercle monopolizing all the elements of the portion of lung affected. 4. A conjoined diffusion of tubercle-corpuscles, and some kind of simple exudation.

In a strict sense, every ordinary pulmonary tubercle is, to a certain extent, an infiltration, since, whilst it begins in the air vesicles, it subsequently invades the interstitial tissue also. But so long as it is distinctly circumscribed, the term is not applied. By tuberculous infiltration, then, we understand every kind of diffused exudation in which tubercles are contained, whether in distinct nodules, or molecularly distributed throughout. Every kind of diffused consolidation in a tuberculized lung (pulmonary apoplexy excepted) is a consequence of inflammation. Tuberculous infiltration, therefore, is simply tubercle mixed up with inflammation-matter, and its consideration necessarily involves that of the mutual relationship customary between inflammatory exudations and tubercle.

Diffused tuberculous solidification in the lung is grey and hard; yellow and firm; or soft and gelatinous.

Grey infiltration is found in large smooth patches, contracted, tough, shining, and slippery. To the naked eye, the texture of the lung in it is lost; but under the microscope, the pulmonic fibres are seen cemented irregularly in the semi-transparent exudation. The air-vesicles have lost their normal form and relative arrangement, and are represented only by the interspaces which exist amongst the bands of fibres. Distinct tough grey miliary tubercles may or may not be sparsely or thickly present, and may stand out in relief on cutting through the part; but neither by section nor by tearing can any other kind of granulousness be produced. A thin colourless serum bedews the part. No blood-vessels and no bronchial tubes remain pervious within the centre of the mass. Small bronchial tubes may be pervious for a short distance beyond the margin of the induration. If so, this part of them contains muco-pus, and has its lining membrane thickened, softened, and sometimes reddened. The lung bordering the grey induration may be in the state of red hepatization, but more frequently it is crepitant, mottled black, blue and red, and only moderately congested. In the midst of the semi-transparent induration, we may find distinct grey miliary tubercles; the same in their

opaque stage; spots of cheesy-yellow tubercle; and *depôts* of softened tubercle. Or, on the contrary, a portion of tuberculous lung may be glazed with grey, smooth, semi-transparent induration, in which no distinct tubercles are to be seen.

In the lung which is close adjoining grey induration, we find nebulous and fatty epithelium; compound tubercle cells and granule cells. In the induration itself, a translucent, homogeneous, or else faintly fibrillated matrix; a few fibre cells, partially developed; the pulmonic fibres matted together; and numerous cells of various sizes, nucleated and unnucleated. Of these cells, many are the round granule cells, only differing from those common to all inflammatory lymph in being more transparent. When distinct tubercles lie in the induration, they add, of course, their own proper microscopic appearances.

Yellow Infiltration is also found in large irregular patches, but is not contracted, and is less tough than the grey; being rather unctuously tenacious, or even friable, than firm, coherent, and resistant. The adjoining lung is always inflamed, and is more commonly the seat of local red hepatization than is the case around grey infiltration. We find a greater abundance of free granules and of oil molecules; of cloudy granule cells and tubercle corpuscles. The matrix is never fibrillated. The pulmonic fibres are less distinct, and apparently in part destroyed. The whole is semi-opaque and muddy.

Gelatinous Infiltration is pink, yellowish, or ash-coloured. The part of lung thus affected is smooth and softly solid, but compressible. The air-vesicles within it retain their normal arrangement, excepting where miliary tubercles happen to exist; or it may be softly nodulated, from the gelatinous exudation being firmer in some of the air-cells than elsewhere. The colour depends merely upon admixture with extravasated red blood globules, and their dissolved hæmatin. That regarded, we find indifferently in the reddish and the more colourless forms the same objects: fatty epithelium; compound tubercle cells; tubercle corpuscles; pigment cells; granule cells; fibre cells; and sometimes crystals of mineral salts.

These tuberculous infiltrations follow the usual rule of parenchymatous inflammations, by which an acute inflammation tends to soften, a chronic one to harden.

As to their *rationale*:—In the dense, contracted, glistening, grey induration, we see a very chronic inflammatory exudation of common induration-matter, variously mixed up with the elements of tubercle. We may assume that the plasma, when exuded, is very contractile, and but slightly tuberculous: more blastematous than corpuscular.

In yellow infiltration we see an acute inflammatory exudation; the plasma not contractile, largely tuberculous, more corpuscular than blastematous.

In gelatinous infiltration we see an acute exudation, but thinly adhesive. An effusion of liquor sanguinis, too feebly contractile for the lymph to separate itself as much as usual from the serum. We

may infer that it is poured out rapidly, and that it coagulates to its jelly-like extent immediately, from the fact of the chance-setting within it of a bronchial epithelium cell, with its cilia extended. The plasma is poor in fibrin, but more blastematous than corpuscular.

Greyness indicates that the exudation is chronic; yellowness that it is acute; jelly-like consistency that it is recent. We constantly find specimens of all in the same lung. The grey induration is the oldest, and represents the earliest reactive response to the irritation occasioned by the tubercles, whilst there is yet a fit state of blood to pour out contractile plasma. The yellow infiltration points to a deteriorated condition of blood, and to more of local inflammatory process. It occurs subsequently to the grey, when the progress of the disease had injured the constitution more. The jelly is a still later exudation, and takes place towards the close of life, when the blood has become poor in every respect, and unable to furnish firmly coagulable lymph.

Besides these tuberculous infiltrations, in which the tubercular matter is intimately associated with inflammatory exudation of a characteristic kind, tubercle has also an habitual relationship to common forms of inflammation.

A grey miliary tubercle, whilst yet semi-transparent, may be surrounded by lung which is quite permeable, crepitant, and to the naked eye healthy. Examined by the microscope, the small blood-vessels around it are somewhat enlarged and clustered, as if they had been obstructed and pushed outward by the tubercle. The adjoining vesicles present the appearances already dwelt upon. There is no evidence of inflammation here.

A miliary tubercle may become opaque, and still have no inflammation around it; it may also undergo centric softening without inflammation; but as a rule, when softening commences in the tubercle, inflammation around it, if absent hitherto, commences likewise. Perhaps we never find a distinct tubercle softened throughout to complete liquefaction without its being surrounded by a zone of lung affected with inflammation in some shape. What is true of one miliary grey tubercle is equally so of groups. Innumerable distinct grey tubercles may be strewn throughout a lung, or a portion of lung; and for so long as they remain small, distinct, and unsoftened, there may be no inflammation. This does not apply to primary yellow tubercle. We never see them thickly strewn without some kind of attendant pneumonic change. An ancient yellow tubercle, it is true, may be found capsulated by a fibrous envelope, around which the lung is all but healthy. Here there was once a certain amount of inflammation—small in amount and adhesive in type, it may be,—although there is none now.

When grey miliary tubercles are thickly clustered in groups, local chronic inflammation is common around each group, in the form of grey semi-transparent induration. When grey tubercles become en-

tirely opaque, and still more constantly, when they begin to soften, if not already enclosed in a patch of grey induration, they are now surrounded each singly by a circle of red hepatization, the intervening lung remaining crepitant and not congested, or greatly congested but still permeable ; or a portion of lung including numerous distinct tubercles may be entirely in a state of red hepatization. Hence, when a number of distinct tubercles are softening, we have co-existing either an equal number of local miniature pneumonias, or else one patch of pneumonia including all the softening tubercles.

As a softening tubercle increases in extent, it never does so at the expense of healthy lung, but always of lung which has previously been the seat of inflammatory exudation. To the ravages of softening lung, therefore, inflammation is quite essential. Our first indication of commencing softening—the fine moist crackle—is due to hypersecretion in the minute bronchial tubes close around the tubercle, which is occasioned by local inflammation.

The process by means of which, out of a series of neighbouring tubercles, a large vomica is formed, is as follows :—The intervening lung inflames, and assumes some form of solidification,—if slowly, the grey induration ; if quickly, red hepatization ; ordinarily the former. Molecular disintegration and liquefaction of the solidified lung ensue, and so permit the already softened separate tubercles to open into each other, and form one common vomica. As long as the exudation seals up the bronchial tubes, so long does the vomica remain closed. Such a closed vomica, full of pus-like fluid, may be found the size of a walnut. After a time, by the same destructive agency which has enlarged the dimensions of the vomica, a bronchial tube is opened into, and a cavity results.

Where there is a number of minute local pneumonias, there is usually bronchitis in local patches only. During the sleep of miliary grey tubercles there is not, as a rule, any bronchitis, or any pleurisy whatever. When the grey tubercles begin to soften, they begin to irritate ; they now become "thorns in the flesh," usually not before. The reactive local inflammations correspond.

Pleurisy, when spontaneous in its origin, whether general or in local patches, usually responds only to the presence of tubercles near to the pleural surface of the lung. If a superficial tubercle is small, not prominent, and is semi-transparent, the pleura over it may remain bright and unaltered. If the tubercle projects, or becomes opaque, the pleura over it is white and thickened. Any irritation beyond this is shown by every possible degree and result of pleurisy, with or without the deposition of tubercle in the adhesions which may be formed.

The bronchial tubes and the pleura near to primary yellow tubercle are never found free from inflammation.

The morbid anatomy of the bronchial tubes in tuberculized lungs may be briefly summed up by saying, that every result of bronchitis is

found; the only peculiarity being, that as long as the tubercles allow a large portion of the lung to remain healthy, so long is the bronchial inflammation more or less limited to the vicinity of those tubercles which are pursuing the destructive course. There may be great local destruction of lung without extension of bronchitis beyond the immediate neighbourhood of the part.

In that part of the lung which is free from tubercles we may find, to any extent, congestion, œdema, emphysema (partial), red granulous hepatization, red smooth solidification, or grey hepatization. These possess no peculiarity in their anatomical features dependent on their occurrence in a tuberculous lung.

With non-inflammatory simple blood-exudations the connexion of pulmonary tubercle is small. Pure blood is found in the air vesicles in the rare instance of death during hæmoptysis. Such extravasation of blood, with laceration of lung tissue (pulmonary apoplexy), is very rare. Clots of blood have also been found in cavities. Point-extravasation of red globules interstitially in some part of the lung tissue, or in the tubercles, is never wanting. Of simple fibrinous effusion without inflammation in a tuberculous lung, there is no proof. Passive œdema it would be difficult to distinguish from the common active kind.

Destructive Course of Chronic Pulmonary Tubercle.—The *destructive course* of tubercle comprises degenerative changes in the tubercle itself, inflammatory action in the tissues adjoining, and, commonly, increased deposition of tubercle.

Softening.—After remaining passive, or quietly increasing in magnitude, for an indeterminate period, varying probably from a few weeks to an unknown number of years, tubercle begins to soften. Semi-transparent tubercle first becomes opaque, and remains opaque and firm for an indefinite time. It next loses its firmness, usually first in the centre, which assumes a buff colour, and by degrees softens to the consistence of thick paste. Liquefaction proceeding, the whole tubercle changes into a creamy fluid, and the softening is complete.

During the firm opaque stage of the grey tubercle, in the tubercle cells we discern no other change than that they are no longer as translucent as before; but in their relative proportion to the free molecular matter there is a marked difference. Compound tubercle cells are few. Tubercle corpuscles are also less abundant. Oil molecules abound. The outlines of the air vesicles are imperfectly traceable. The matrix is still tenacious and tough, and the whole moves together under examination.

In the pulpy stage the matrix has become liquid, the pulmonic fibres are broken into lengths, and molecules are still more abundant.

In the creamy stage there is simply a larger proportion of fluid. We find shreds of pulmonic fibres; bits of small blood-vessel, either fattily degenerating, or merely shrivelled; various forms of nebulous

cells ; occasionally large fatty epithelium plates and compound tubercle cells, which have escaped disintegration ; oil molecules and granules in abundance ; and pus cells or not, according to circumstances. If there be communication with the air by means of an opening into a bronchial tube, pus cells are always found, and make up the bulk of the fluid ; but when the vomica is closed, a small one (size of a pea) may not present any pus cells in the pus-like liquor which fills it. A large one (size of a walnut), though closed, I have invariably found to contain pus cells ; and in addition there may be seen in the contained fluid bronchial epithelium, enveloped red blood globules, and pigment cells ; bits of lung-fibres ; dots of mineral salts, and small blood crystals.

If active inflammation surrounds the vomica, however small this may be, pus will be found in the liquor of the tubercle.

As crude yellow tubercle is opaque from the first, the first indication of softening in it consists in loss of firmness. It first becomes cheesy, then rough and creamy. Softening more rapidly affects the entire tubercle than in the grey variety, but occasionally when a yellow tubercle is large, the centre will be cheesy before the rest. A greater abundance of yellower oil molecules, and of free granules, fewer cells of any kind, excepting tubercle corpuscles, and a more muddy appearance altogether, are the microscopic distinctions. In the liquor obtained from centric softening, whilst it has not yet implicated the rest of the tubercle, and consequently not yet reached the lung tissue, we find only tubercle corpuscles, oil molecules, granules, and liquid ; never pus nor inflammation globules. As soon as the entire tubercle has liquefied, and the softening has thus reached the lung tissue, we find pus and granule cells.

The whole of a tubercle does not usually soften at once. Softening may commence at the centre ; or at the periphery ; or at both at once ; or when the tubercle is large, it may commence in several points at the same time. The rule is, that when the tubercle is distinctly circumscribed, and no active inflammation exists around it, softening commences at the centre, and may be exceedingly slow in reaching the circumference. But when softening commences at the circumference, it does so in consequence of inflammation in the adjoining lung tissue, and is never long before it involves the entire tubercle. The irregular softening of diffused tubercle is due to the circumferential or centric commencement of softening in each or several of the small tubercles, of which the larger mass is but an aggregation. In every instance that part of the tubercle is first to soften which is first deprived of its means of support :—the part most distant from supply when the centre commences ; the part most immediately interfered with by adjoining inflammation when the circumference.

A cavity may be of any size, from that of a pinhead to that of one capable of holding a quart ; and may be surrounded by lung in every

imaginable condition, excepting that of health. A thin filmy membrane may be all that separates it from the lung tissue; or its boundary wall may be a dense white fibrous layer, of very variable thickness. The surrounding lung may be merely congested, or hepatized, or, as is most common, it may be the seat of grey induration. However dense, white, and shining the wall of an old cavity may appear, it is never anything more than imperfect fibrous tissue, and is cartilaginous only in outward appearance.

It is generally stated that cavities enlarge chiefly by the melting down of fresh tubercle deposited in their wall. This is not quite exact. Fresh tubercle is met with either in the shape of distinct nodules, or of grey induration on the outside of the wall of the cavity, but in the actual membraniform wall we do not ordinarily find characteristic tubercle cells. Proceeding from within outwards, we find next to the contained fluid a layer of granule cells and fat molecules, forming a sort of pyogenic pavement epithelium. This rests upon a delicate network of fibrils, amongst the meshes of which more granule cells are freely scattered. The cells for the most part are nucleated. Some are pus cells, but the majority have not exactly that character. A few pigment cells, and blood globules, and glomeruli are sometimes found. Fibre cells, fine and transparent, are largely seen, more and more developed as they are further from the cavity. When the neighbouring lung is permeable, it is separated from the outside of the fibrous wall by a layer of soft gelatinous exudation, which shades off into the tissue of the lung. More frequently, grey induration is in contact with the fibrous wall of the cavity.

The contents of an old cavity are little else than pus.

Beneath the soft pyogenic lining of a large cavity I have in two instances found bloodvessels in the state of fatty degeneration. In another instance I found fatty bloodvessels in a portion of distensible lung half an inch distant from any deposit of tubercle, the epithelium of the air vesicles here being fattily degenerate. This makes four cases in which I have now seen fatty degeneration of the small bloodvessels of the lung in phthisis.—Near to, but not mixed up with, tubercle, in one; within grey tubercle, on the enclosed wall of an air vesicle, in one; in the wall of a large cavity, in two.

If we trace a large bronchial tube towards the wall of a closed vomica, its blind extremity is first stopped up by a plug of yellow tenacious concrete pus, and then by firm grey gelatinous matter, into which by degrees the tube seems to be transformed.

Nature of Softening.—The softening of a tough tubercle does not necessarily imply absorption of the solid and deposition of fluid in its place. It is a physical molecular change in the original material of tubercle, such as is exemplified in the centric softening of fibrinous clots, and fibrinous exudations, which has so often been mistaken for pus. Such, also, as occurs, according to Mr. Paget, when a large firm collection of inflammatory exudation is suddenly converted into the

fluid of an abscess. Spontaneous softening, therefore, is not a special characteristic of tubercle, but belongs to it in common with many other firm morbid formations. Just before the fluid stage, when the tubercle is on the eve of liquefying, but is yet only soft and moist, the tubercle cells are larger, plumper, and more opaque than at any previous period. They also now manifest changes of shape under manipulation, as observed by the microscope, which they cannot be made to do at any other time. This larger size and more uniform outline probably indicate physical imbibition rather than growth ; impending disintegration rather than development. It shows that the tubercle cells are about to change their condition ; that they can no longer remain stationary ; that the power which they have hitherto possessed of maintaining their own feeble nutrition is gone. As liquefaction advances, most of the cells disappear, and in their stead we have oil molecules, granular detritus, and liquid. Besides the true oil molecules, highly refracting particles of a peculiar modification of albumen (Dr. Parkes), and particles of crushed phosphate of lime (Dr. Jenner), cannot by the eye alone be easily distinguished from oil molecules. A little micro-chemistry is requisite. The lime effervesces with, or is dissolved by, an acid ; the albumen is scarcely altered by ether : the oil-molecules are either greasily dissolved away, or else much brightened by ether. The lime indicates calcareous degeneration ; and the albumen in minute particles also indicates degeneration equally with the oil molecules.

Softening of tubercle, then, essentially consists of two combined modes of disintegration—fatty degeneration and liquefaction. The two do not seem in all cases equally to participate. The more there is in the softening of molecular transformation, the slower and safer and more likely to admit of arrest, is the disease. The more there is of liquefaction, the quicker and more destructive is the progress. The former change is more allied to normal disintegration of tissue. The latter to disease. The former admits of slow ulterior and not unsafe transformations. The latter is connected with more inflammation of surrounding tissue.

Destructive Inflammation.—When a tubercle is fully liquefied, the surrounding lung tissue, if not already inflamed, always becomes so, just as the integuments over an enlarged lymphatic gland inflame when this has fully suppurated. But as the skin in most cases does not wait until suppuration has been completed, before it begins to inflame, so, in like manner, the pulmonary texture seldom waits for the completion of softening in the tubercle ere it inflames. Inflammation, molecular death, and suppuration are the terminal steps in the local destructive course of tubercle ; and when united, by their havoc, so riddle the lungs with channels and cavities, as constantly to excite our wonder that life could have been at all compatible with such an amount of disease.

Increase of Tubercle.—Tubercles are found of obviously different

age and condition in almost every microscopic examination of chronic phthisis. The deposition of tubercles is therefore progressive. What causes this progressiveness? In the first place, and mainly, the persistence and increase of the cachexy. Then, inflammation around existing tubercles, provided the cachexy is great. We have a right to infer this, if only from the fact that tuberculization, in the shape of tubercular infiltration (which might be called tubercular inflammation), is more extensive, more rapid and destructive, in the later stages of chronic phthisis, when the general cachexy has attained its worst. And lastly, it is possible that the mere presence of tubercle may serve to some extent as an attractive focus for more.

As tubercle corpuscles possess no power of growth after they have once attained their ordinary small size, which they probably do at once, and no power whatever of self-multiplication by cell-reproduction, a tubercle can only increase in size (as already remarked), by the accretion of fresh material from without. Now, does the existence of some tubercle in the lung exert a strong attractive influence for more? Whilst the diathesis remains unimproved, does deposition of tubercle, after it has once commenced, go on fast in proportion to the number of separate deposits already laid down?

That a tubercle is to some extent a centre of aggregation is certain, or it would never increase at all. But it is less clear that this aggregation results from any such attraction of like-for-like as that which operates, for example, in crystallization. A tubercle, however small, obstructs a number of capillary vessels, produces a stasis in the circulation, which, so long as inflammation has not obliterated the vessels, is most considerable close to the tubercle. Exudation is consequently favoured here more than elsewhere, and provided the blood plasma be tuberculous, and in proportion as it is so, will such exudation tend to increase the quantity of tubercle. At the same time, we cannot prove that there is none of the like-for-like attraction (homogeneous affinity) betwen the elements of a completed tubercle and the blood plasma; but there are reasons for considering that if any such do operate, its influence cannot be strong. If it were strong, the dissemination of small tubercles would be the exception, and not the rule. And, unless we assume the first deposition to have exhausted the tubercle material for a time, existing tubercles would continue to increase in size in a geometrical ratio; tubercles would scarcely be laid down at all in fresh situations; and temporary lulls of the disease would be greatly less common than they are. There is another reason for inferring that tubercle has not any *strong* tendency to invite the formation of more. Such attraction in the living economy generally proceeds from, and depends upon, active vital changes, in which active cells draw from the blood what they require for growth and multiplication. In this way cancer acts as a centre of attraction, for its cells grow, multiply, and for a while remain as cancer matter. But not so in tubercle. Here, cell life is at its minimum; development is small;

multiplication null. Material is not wanted for growth, for after the first there is no growth; and material is therefore not attracted. Still tubercles do enlarge; and if a tubercle does in some way promote further deposition around itself, of what moment is the question—whether it does this by means of direct attraction exercised upon blood plasma, or merely by mechanical obstruction at the spot favouring exudation? The question has this importance and interest. In the one case—Tubercle must ever keep up Tuberculosis, for Tubercle makes Tubercle. In the other, it is the tuberculous diathesis alone which occasions increase of tubercle, and the tubercle already deposited has not, from the mere fact of its presence, at all events before the period of softening, any direct influence in keeping up the tuberculous diathesis. In the former case, the mere existence of a tubercle would offer an all but insuperable obstacle to correcting the diathesis. In the latter, could we correct the diathesis, the existing tubercle would not of necessity cause more to be laid down.

These remarks apply only to tubercle when completely formed. Whilst forming, the compound tubercle cells which line the air vesicles probably do attract their plasma from the blood; and, therefore, at this stage of unformed but forming tubercle, the spot of lung affected must certainly be considered as a focus of attraction for tubercle; but this ceases as soon as the given air vesicles are crammed with exudation, and the tubercle has thus become completed.

Progressive increase in the quantity of tubercle is the principal element in the destructive course of chronic phthisis, not only because it proves that the cachexy still continues in active operation, that "the snake is not even scotched," but also because the larger the tubercles become, the more certain are they to soften quickly (and therefore dangerously); for the farther the oldest portions of each tubercle are pushed inwards towards the centre of the deposit, the farther are they removed from the source of nutritious supply, and from the influence of living tissue.—*British and Foreign Med. Chir. Review, Oct.* 1855, *p.* 473.

23.—*Mode of Administering Cod-liver Oil.*—Cod-liver oil is so precious a medicament, especially among children, that every imaginable contrivance to facilitate its use has in our eyes great value. The following is a good formula for a vehicle which completely masks the disagreeable taste and odour of cod-liver oil:

Yolk of one egg; sugar, ℥i; orange flower water, ℥j.; cod-liver oil, ℥iij.; essence of bitter almonds, gtt. j.—*Dublin Hospital Gaz., Feb.* 1855, *p.* 13.

24.—ON THE USE OF COD-LIVER-OIL OLEINE.

By Dr. Arthur Leared.

The utility of cod-liver oil in a great variety of diseases is now so fully established, that the mode of its administration is a point of cor-

responding interest. From my experience of this remedy, however, chiefly at the Brompton Hospital for Consumption, and at the Royal Infirmary for Diseases of the Chest, London, I have satisfied myself that, in certain cases, it cannot be at all tolerated; while, in others, the inconveniences from a persistence in its use are so great, as to render it of very questionable propriety. Every one who has extensively prescribed the oil internally will, I think, agree with me in this. In many instances, however, this arises merely from a repugnance to the sensible properties of the medicine. Its taste, smell, or the oily sensation left by it in the mouth or fauces are complained of, and occasionally induce nausea, and even vomiting. By proper management, the difficulties in question are, nevertheless, usually got rid of. But it is not my intention to enter here into these matters. More serious obstacles present themselves, in the shape of dyspeptic symptoms, of various degrees of severity, occurring some time after taking the oil. These are—loathing of food, eructations having the taste of the oil, nausea, sometimes attended with vomiting, cardialgia, severe abdominal pain in the region of the duodenum, &c. I have observed the last-named symptom to be in some cases a prominent one, and I lay stress upon it for reasons to be afterwards explained. Against the foregoing train of symptoms the measures usually employed in dyspepsia are sometimes successful, but in other cases they utterly fail. I have tried bismuth, hydrocyanic acid, bitters, mineral acids, and alkalies, with the same negative results. The times of taking the oil, as well as the kind taken, have been changed in vain. Although otherwise strongly indicated, a persistence in the use of the oil under such circumstances would of course be highly injurious. I have frequently observed that patients who suffered most from the after-effects of the oil, exhibited no repugnance to the act of taking it. The practice I am about to advocate in cases so refractory as those referred to, was suggested by a theory of my own of the digestion of fat. I must beg to refer to the 'Medical Times and Gazette" of June 3, 1854, for a detailed explanation of my views. It will suffice to mention here that I regard the pancreatic secretion as subservient to the digestion of fats and oils, in virtue of its power of resolving these bodies into their immediate principles, stearine, margarine, and oleine, or into the two latter, which are those of cod-liver oil. I have also advanced the opinion that it is the oleine which is alone available for nutrition, and that the others are excrementitious. This theory, it will be observed, is very different from that of Bernard. According to the latter, fatty bodies are absorbed in a state of minute mechanical division, effected through the emulsifying power of the pancreatic fluid. From my own experiments, and having observed that the digestibility of fats and oils appears to be directly proportionable to the relative amount of oleine in their composition, I determined to try the effects of oleine practically pure, derived from cod-liver oil.

For this purpose a considerable quantity of it was prepared, from my

directions, by Messrs. Butler and Harding, chemists, St. Paul's Church-yard. The process employed consisted in submitting the oil to a very low temperature, and separating the oleine by pressure from the semi-solid mass thus produced. I am informed that 75 per cent. of oleine was about the average yielded. Thus obtained, it is a very liquid, and, at ordinary temperature, a very transparent fluid, agreeing in colour with the oil from which it is prepared.

Its freedom from margarine may be tested by submitting it to as great a degree of cold as possible, when there should be no actual precipitate, but a certain amount of cloudiness usually occurs. Of its exact analysis I can only speak conjecturally; that of the oil itself is, however, well known. If, therefore, the good effects of cod-liver oil are largely ascribable to certain substances in combination with it, as iodine and bromine, there is a strong presumption that oleine is superior, as containing a larger proportion of them. Gaduine, a peculiar principle of cod-liver oil, to which its efficacy has been also ascribed, according to De Jongh, who discovered it, adheres to the oleine when the margarine is separated, and is isolated only with great difficulty. Gaduine, therefore, will be administered in larger proportion in the oleine than in the oil itself. If, then, in the latter case, oleine is assimilated to the exclusion of margarine, no doubt can exist that oleine is the most active remedy in all cases in which the oil is indicated. It is my present purpose to maintain that in certain cases oleine is alone available, and that its efficacy is at least not inferior to the oil. The question, in its more extended shape, remains to be tested by further clinical experience. When I left London to take my present appointment I had, chiefly out-patients at the infirmary, a considerable number of cases under observation in which, on account of severe dyspeptic symptoms, cod-liver oil could not be borne at all, or was borne with great difficulty. I regret to say that, with two exceptions, I have not brought the notes of them with me. I cannot, however, recall a single instance in which the use of the oleine in the same or even larger doses than the oil, was unattended with good results. In some instances, as will be seen, severe pain and obstinate vomiting caused by the oil, were at once removed by changing it for oleine. I may here observe, that although in many cases dyspeptic symptoms are at first induced by taking the oil, a persistence in it appears to overcome them. There are other cases in which, although the oil is well borne at first, the system afterwards rejects it. In the latter cases the oleine is the most useful, and I have almost invariably found, that the oil could be replaced by it with the best effects. I have also noticed in England, as no doubt others have as well, that taking cod-liver oil is much less irksome to certain patients in winter than in summer. Inquiries which I made among retailers of the drug in London, as to the sale at different seasons, go to prove this remarkably. In this point of view cod-liver oil oleine is of interest as regards warm climates like this.

For although the well-known theory of Liebig of the uses of fat in the economy may be adduced to explain the effects of temperature alluded to, it is highly probable that the superior digestibility of oleine would cause it to be better tolerated in hot climates than the oil. The following abstracts are taken from my notes of the two cases alluded to:—

E. D., aged 16 years, became an out-patient at the infirmary October 3rd, 1854. He had phthisis, and cod-liver oil in drachm doses three times daily was prescribed. At his next visit he said the oil made him so sick that he had constantly vomited at intervals varying from a quarter of an hour to an hour after taking it. He was then given a finer kind of oil in the same doses for a week. At its expiration, he reported that he had invariably vomited between two and three hours after taking the oil, with the exception of the doses taken at night. Oleine, prepared from the same kind of oil as that last taken, and in the same doses, was now prescribed. For the week following the report is, that he had not vomited at all after the oleine, and felt no inconvenience from it. The oil he had last was now again ordered, and the following week he stated that although it did not actually cause vomiting, he was greatly tormented by its rising in his throat. Recourse was now had to the oleine, which he continued to take up to the date of the last entry (some weeks) with the same good results as at first. It is noted that during the week preceding one of his visits his stomach had been so irritable that he had sometimes vomited after his meals, and the oleine had, nevertheless, not induced vomiting or rising in the throat. It should be stated that no alterations were made from the first in his other medicines, consisting of a mixture containing dilute sulphuric acid and a linctus for his cough.

W. B., nine years of age, was admitted an out-patient at the Infirmary on account of cachexia, February 16th, 1854. He was extremely thin, pale, and languid-looking. He was ordered a drachm of cod-liver oil twice a day, together with iron in quassia mixture, which was not, however, very long continued. He took the oil more or less regularly until the 18th of August, when I was informed by his mother that he had latterly suffered from great pain and tenderness, on pressure, between the epigastric region and the navel; that she had traced these symptoms to the oil, and that it made no difference whether it was taken before or after meals. Cod-liver oil oleine in the same doses was now substituted for the oil. He took it with remarkable improvement of his general health, and without any complaint for nearly three months. It then occurred to me to try the effects of the residue in the preparation of the oleine, chiefly margarine. This was given for a few days on two occasions, but with considerable interval, in the same way as the oleine. It caused such nausea and "drawing pain," as he described it, in the upper part of the abdomen soon after taking it, that it could not be longer continued. It also appeared to cause obstinate constipation on both

trials. On the latter occasion the bowels were not moved for an entire week. In both instances the oleine was resumed with the same beneficial results as attended it at first. I may add that, previous to my last note, January 26th, 1855, I on more than one occasion tried the same sort of cod-liver oil as that from which the oleine was obtained, but was very soon obliged to let the patient resume the latter. Precautions, it may be observed, were used with regard to these cases to test the merits of the oleine fairly. But in substituting the oil for it, or the reverse, any intimation to the patient of the change was also carefully avoided, so that the matter might be tested still more fairly.

The bad effects of the residue in the preparation of the oleine were remarkable, and, conversely, went to prove the truth of my theory, that in the digestion of fatty bodies it is the oleine they contain which is alone assimilated. The seat of pain and tenderness on pressure, in the case in which the residue was administered, was exactly that which might be expected from derangement of the duodenum in reference to the pancreatic functions. But, omitting all theoretical considerations, I would at present merely ask for a trial of the substitute I have proposed for cod-liver oil in certain cases. I believe that oleine can be administered, as far as regards digestion, in all cases where the oil is desirable.—*Med. Times and Gazette, July* 21, 1855, *p.* 58.

25.—*Glycerine as a substitute for Cod-Liver Oil.*—Dr. Crawcour, of New Orleans, draws attention to the advantages resulting from substituting glycerine whenever cod-liver oil is indicated. It is quite as efficacious, is much less disagreeable, does not disorder the digestion, and may be combined with any other remedy. Besides exhibiting great anti-strumous power, it materially aids in the assimilation of salts of iron, especially the iodide. Quinine is soluble in it without the aid of sulphuric acid, and becomes divested of some of its bitterness. He gives from 1 to 3 drachms in an ounce of water daily. For it to be successful it is essential that it shall be quite pure; and both for this reason and its cheapness Dr. Crawcour recommends Dr. Morfitt's process of decomposing oil or lard with hydrate of lime.—*Gazette Médicale, p.* 309.—*Med. Times and Gazette, Aug.* 25, 1855, *p.* 195.

26.—ON THE TREATMENT OF PNEUMONIA.

By Dr. C. H. F. Routh, Physician to the St. Pancras Royal Infirmary.

[There are but few diseases which are treated more differently by different practitioners, than pneumonia. The methods and remedies vary from the most simple, to the most heroic. In the General Hospital in Vienna, the treatment is almost entirely dietetic, they are simply left to nature. Dr. Todd of King's College Hospital, discourages blood-letting, and even tartar-emetic; he gives large doses of liq. ammon. acet. or citrat., and supports the patient from the first with

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animal broths, given frequently in small quantities, with a small amount of stimulus. From the statistics which we have been able to collect, we find that the treatment by blood-letting, conjoined with tartar emetic, is, in the present type of disease, the worst, and the dietetic the best, especially in severe cases. The indications to be fulfilled are:

1. To diminish the general fever.
2. To relieve the local symptoms.
3. To check the tendency to death by depression.]

1. To diminish the general fever, especially the pulmonary and cutaneous respiration, both which last increase the hyperinosis. In pneumonia, as I have already said, apart from the peculiarity of the chest symptoms (although no doubt resulting from them), the pulse is unusually rapid, and the skin pungently hot.

(a) The quick pulse is, I fear, not sufficiently attended to in general. I believe that, as in fever, or puerperal fever, it is a very bad sign if it exceeds 140 or 160 per minute. This extraordinary frequency denotes diseased blood to a large extent; it is the evidence of a nervous shock, which may prevent nature from rallying. But, whether a pulse be rapid from nervous shock, or even inflammatory fever, its persistence is injurious, because the waste of the body andof its life, which is the blood, now undergoing the ordinary chemical changes in excess, is therefore the more rapid, and in the end will give rise to great debility. In pneumonia, therefore, to check if possible the material depressing tendency is a most important part of the treatment. The pulse must be reduced in frequency. The surest means to effect this is, I believe, *aconite.* The cutaneous temperature is equally certainly reduced by *oleaceous* inunctions; and therefore it is that I seldom if ever bleed, although I would not be so dogmatical as to say I never will. Besides, as before stated, bleeding fails in 53 per cent. of pneumonia.

To those who are acquainted with Dr. Fleming's admirable work on *Aconite,* and the experiments upon which he founded his conclusions, the efficacy of this remedy in checking fever must be well known. It acts upon the heart, directly reducing the frequency of its beats, as well as the number of the respiratory movements; and, if we can judge from the few cases of poisoning in man, it rather impedes, and in excess actually prevents, the coagulation of the blood. Unfortunately, however, aconite is feared and avoided in England as an internal therapeutic agent, because believed to be most uncertain in its effects: and this opinion is justified if we employ the ordinary tincture of the *London Pharmacopœia;* but it is a prejudice to apply it to the tincture of the alcoholic extract of the root of the aconitum napellus or ferox, both of which are to be depended upon. With children, I have more than once been surprised at the effects produced by it in allaying fever, even in comparatively small doses. The tincture of the extract

which I have been in the habit of using contains one grain of the alcoholic extract of the root to twenty drops of alcohol; and the dose for an adult varies from half a drop to three minims. I have given it up to five drops to an adult three times a day; but, in this case, poisonous symptoms supervened—a sort of tetanic rigidity of the entire voluntary muscles, and a tingling sensation all over the body. In another case, where the dose ordered was three and a half minims three times a day, the patient, wishing to get well the sooner, as he supposed, took a double dose. Complete paralysis supervened, with loss of pulse, fainting, sickness, and vomiting. The pupil became so dilated that the iris was not to be made out. A simple purgative cured the first case; the second did not recover till two or three hours by stimulants, especially ammonia. The potency of this preparation is therefore manifest. One drop of opium has been known to poison an infant; and, even for children under three or five, a quarter of a grain of Dover's powder, or one-twentieth of a grain, has often a marked effect. Four and a half grains of opium and two drachms of the tincture have been known to kill a man. There is no doubt that seven drops of the tincture of aconite before alluded to would have killed my man, if nature had not assisted him, and prudential measures had not been adopted. For practical purposes, I believe I may say that one drop of this tincture is at least equivalent to one grain of opium. I therefore use it with great care, especially with children, on whom I think it exercises an influence equally as strong and peculiar as opium. Thus, if one or two drops be added to eight ounces of water, although only half an ounce be the quantity given for a dose, *i. e.*, from one-thirty-second to one-sixteenth of a drop, and repeated every two hours, an effect is usually manifested on the feverish excitement in a very few hours. With an adult I never would now begin with more than two drops, repeating one drop every two hours till the pulse falls. But even this is a large dose; and, in most cases, one drop to begin with, and a quarter to half a drop repeated every two hours till the pulse falls, will be found sufficient. In its action, it must be carefully watched; the patient must be often seen; and great care must be taken that the party to whom its administration in our absence is confided, is trustworthy; and directly the patient looks pale, and feels faint, its use should be discontinued. Here, then, is a remedy to be preferred to blood-letting, because, while it is equally powerful in its action, it has the advantage of sparing his blood for the future contingencies of the disease.

(*b*) The peculiar heat of skin which exists in the first stage of pneumonia is believed, as I before stated, by several eminent observers, to be pathognomonic of the disease in the first stage. If it be made to include under this term the pulmonary congestion alluded to, I must fully concur in it. I believe that it is owing to hyperoxygenation of the blood in the *cutaneous* capillaries even more than to the hurried respiration in the lungs, which, in an inflamed lung, must be necessa-

rily interfered with and defective, as occasionally evidenced by the lividity of the countenance. Following out Mr. Taylor's practice, and encouraged by the experiments of Messrs. Becquerel and Breschet on the effects produced by varnishing over the skin with various substances, I have been commonly in the habit of ordering my patients, especially children, to be rubbed over the entire body with a mixture of sweet oil and mutton suet; and I can speak in the most commendatory terms of its effect in cooling the surface of the skin, and reducing the fever; and this in cases where sudorifics had failed in producing perspiration. I can give no better explanation than that already suggested for these results: but I speak practically, and after extended experience: indeed, I may say I know no surer means, and I might add, no speedier remedy; for it is generally effective within three hours in reducing heat of skin and most of the unpleasant effects of anorexia. The disadvantage is the objection usually made to oleaceous inunction by adults. Probably, in some of these, a wet sheet or hydropathic packing would effect the same result.

My experience, however, of this mode of treatment is limited to a few cases of fever, in which it was followed with good effect; and the reports of M. Hegele of Augsburg, who states that he used it successfully in forty cases of pneumonia. The experience of Moreau, Moneta, and Compagnani, before referred to, tends to the same direction.

2. The second indication is to relieve the local symptoms by removing the local mischief and promoting expectoration. I shall best explain my practice here by speaking of the plan adopted under three heads. *a.* Remedies acting *generally* on the system, and at a distance from the affected part, by derivation. *b.* Remedies acting *locally* by derivation. *c.* Medicines acting locally and generally by relieving pain and promoting expectoration.

(*a*) Of these, there are three which I shall notice; pediluvia, Junod's apparatus, and purgatives. It is curious how rarely pediluvia are employed in pneumonia, particularly among adults. Abroad, indeed (although the why and wherefore I have never been able to discover), there is a belief that it is dangerous practice in inflammatory diseases of the lungs: and yet M. Junod's exhaustion pump, which acts precisely on the same principle, is favourably mentioned. It is generally always practicable to bring about deliquium by stimulating pediluvia. If the patient be placed in the sitting posture, and his feet, up to his hips nearly, placed in warm water, the temperature of which is gradually raised by the addition of more and more boiling water, as the patient can bear it, he will usually faint in about twenty minutes. I have seen a strong, robust, plethoric man, with high fever and active cerebral congestion, made to faint in twenty minutes by this simple means; and the fever has given way, on his recovering his senses, to copious perspiration. In this manner, we may often produce all the effects of a good venesection and yet spare our patient's blood. In simple pulmonary congestion, indeed, no other remedy is required.

Purgatives, since the prevalence of cholera, have not been much in vogue ; yet their derivative effects are well marked in many instances, and as such they are most efficacious in the outset of pneumonia. I need not, however, dwell upon this point, as it will be readily admitted, not to speak of their beneficial effect in preparing the system for the use of other medicines, and the clearing of the *primæ viæ*.

After all, however, of all measures applied at a distance from the affected part, to derive from it, none is so effective as Junod's exhausting apparatus. Pounds of blood may by its means be drawn from the body and collected in the extremities ; and in this manner all that blood-letting can do is effected. The local congestion is removed, and comparative ease is obtained, and again the blood is saved. The quantity of blood in the system is not necessarily favourable to hyperinosis or inflammation. And if this be impeded, by retarding the rapidity of its flow through the lungs by aconite, and if the skin be rendered nugatory as a respiratory organ, by oleaccous inunction, we hold both general and local disorder under control, and may soon expect recovery. I hope that this apparatus may be, ere long, more generally employed in England. It has done good service already abroad ; and we should not hesitate to adopt a good measure merely because it varies from our usual routine.

(*b*) Among the local derivants, cupping, leeches, and counter-irritants are much employed. Of the good effects of the two former I am fully satisfied. But here, again, I dissent from their employment otherwise than as an exceptional practice. I believe this is very seldom necessary, and particularly leeching with children.

I have seen leeching chiefly used in the practice of others. It certainly has cured, and very generally does cure, the pneumonia ; but it commonly kills the patient, or lengthens unnecessarily his convalescence. Among adults, its effects are more salutary ; I would almost say especially so in cases treated by venesection. If M. Bouillaud's cases recover, I believe they owe it to the two average cuppings and the forty leeches. But I think either is generally unnecessary. *Dry cupping* will do all that is required. It will, if *extensively* applied, and herein lies the secret of its successful employment, effect all that the ordinary cupping or leeching could do, without weakening the patient. The employment of *blisters* is variously spoken of. Some say they are injurious, as giving rise to so much distress, and prefer mustard poultices. This depends of course a good deal upon the patient's feelings. But I think more depends upon the *manner* in which they are applied. The cantharidine mixture, or the solution of the acetum lyttæ in chloroform, vesicates the skin very speedily, and if the surface be covered with cotton wadding immediately after the application, the vesicle soon rises, and with comparatively little discomfort to the patient. And if the wadding be repeated every two or three hours, repeated vesicles will form, which may be successively cut. In this

manner, the local distress will be greatly relieved. I have seen a patient with mitral disease and great pulmonary congestion, of *several weeks' duration* (and in whom blood-letting, either local or general, was contraindicated) lose in this manner quarts of serum, and be so far relieved thereby, as to be able to get up and resume her ordinary occupations: and, indeed, in one case, the patient, who had been unable to walk for months, found herself so far recovered as to be able to walk up to my house and back, a distance of a mile and a half each way, to visit me, apparently, as she assured me, without much inconvenience. I am aware this is strong language; but at the risk of being called an enthusiast in my advocacy of blisters, I am bound to speak from my own experience.

If blisters, however, be objected to, I think that flannel dipped in turpentine, applied to the chest, and especially as a sequence to the dry cupping, is the next best remedy. Patients are almost always able to bear this species of counter-irritation in preference to mustard poultices, and for a longer time, and the effects are certainly less painful, and as lasting. Here, also, however, the surface over which it is applied should be large. The remedy, if only partially applied, is of little value.

Among the medicines which promote expectoration, &c., I have found the most useful to be—

(*c*) Small doses of calomel, and tartar emetic in quarter grain doses, given at first. I give the calomel as an alterative, or occasional purgative, not with a view to touch the mouth. The tartar emetic is certain as an expectorant and sudorific. The secret of its employment, I believe, is to give it in the early periods—the first three or four days—and not to persist in its employment too long, else it weakens the patient a good deal, and depression of the system will not cure pneumonia. By the use of these remedies, the inflammation may be generally checked by the third, fourth, or fifth day, and the fever so reduced as not to require more active treatment. So soon as the fever, however, is reduced, and even before, if any irritative or hectic excitement supervenes, I conjoin cod-liver oil. I will not here give an explanation of its operation; I must be content to speak from practice, and this is highly encouraging. It possesses one advantage, my patient often looks better, fatter, and stronger at the end of his convalescence than he did previously: and this is always a favourable and agreeable result to both doctor and patient.

3. The mortality in pneumonia I have stated to be large in proportion as the tendency to death by exhaustion exists. To obviate this, from the first, I prescribe moderate quantities of beef tea. I would rarely give the patient the *diète absolue* of the French. The more prudent diet appears to be one of the nature of the middle diet of an hospital: and this even in what are called dynamic pneumonias, as opposed to the typhoid varieties, in which stimulants and nourishing aliment are from the first necessary. I have not yet tried the plan,

but it appears to me as possible that admixture, in soups, of large quantities of salt, might be found useful in improving the character of the blood, dissolving the excess of fibrin, thus facilitating its removal, and generally by augmenting the quantity of chlorides in that fluid.

The treatment I recommend is—

(*a*) Reduce the fever by aconite. (*b*) Relieve the local symptoms by dry cupping, Junod's apparatus, pediluvia, purgatives, blisters, avoiding as much as possible all abstraction of blood, local and general. (*c*) Promote expectoration by small doses of tartar emetic, chiefly at the beginning of the disease; and (*d*) give small alterative doses of mercury, if necessary: and, lastly, rather support your patient by mild emollient diet. In this manner you best avert the tendency to death, and diminish the mortality.—*Association Med. Journal, June* 8, 1855, *p.* 533.

27.—ON THE NATURE AND TREATMENT OF CROUP.

By Dr. Hönerkopf.

The chief object of this paper is to call renewed attention to the efficacy of sulphate of copper in the treatment of croup. The little favour it has hitherto met with he believes due to its being considered a poisonous substance, and one, from its irritating nature, ill-suited to an inflammatory disease. As to the first point, he says he has employed it in 90 cases without any ill effects, although he administered 2846 grains, or an average of 31½ grains per case. In 15 cases the average reached 77 grains. One child took in eight days 216 grains, or a daily average of 27 grams, and another 40 grains per diem for three days. No evil consequences resulted in any case, and convalescence was much more rapidly established than after antiphlogistic treatment. In treating the poor, who are quite unable to pay for leeches, the economy of this plan is also worth consideration. In the author's cases the duration of the treatment varied from 1½ to 2 days upon the average.

As to the other point, Dr. Hönerkopf reviews the series of symptoms, in order to show that croup is not an inflammatory disease; but here we need not follow him, merely observing that when he states the effusion of pseudo-membrane is no essential feature of croup, and only occurs in about half the cases, that he must include in his 90 cases, several that others would characterize as false or spasmodic croup, a far more curable affection. The great number of cures he met with (77 in 90 cases) also confirms this view. From some trials he has made, the author is disposed to believe, that small doses of the copper, given for a considerable period to children who are much predisposed to, or who have already suffered from croup, may exert some prophylatic effect. As a curative agent he employs it solely,

giving a solution of from 6 to 8 grains in 1 oz. of distilled water, from a tea-spoonful to half or whole table-spoonful. The ease or difficulty with which vomiting is produced, regulates the frequency with which the dose must be repeated; for the torpor of the nerves of the stomach increases with the progress of the disease, and the difficulty of producing vomiting becomes a measure of the severity of the affection. While at the beginning, in slight cases, and towards the decline of the disease, small doses of emetics suffice, much larger doses are required when the malady has continued some time, or is very severe; and after a certain point vomiting cannot be produced at all. A dose is given every 10 or 15 minutes, for four, six, or even eight times, until the more violent symptoms are abated, the quantity being regulated by the severity of the case. Occasionally such improvement is observed after the very first dose. The cough is first less troublesome, there is less anguish and dyspnœa; and, lastly, the croupy sound is exchanged for a mucous râle. The drug is now given in smaller doses every 20 or 30 minutes, and at still longer intervals. In bad cases, if even slight croupy sound remains, it is still continued every two hours, as a relapse is to be feared on the next night. It is also desirable that the patient should not be left without the means of meeting a recurrence, even on the second or third night; but a couple of doses will then usually suffice.

If in very bad cases we can scarcely perceive any change in the croupy sound in twelve or more hours, we must not yet despair, for the improvement is often sudden and unexpected. When the other symptoms have improved but this tone remains, we must never relax, for the enemy only sleeps, and may break out again with renewed vigour. Everything depends upon the energy of the practitioner, who must at first see the doses forced down the child's throat, or they will be neglected, and especially as the child's condition and the friend's carelessness require watching the next evening or two, when relapse is so common. Although vomiting is not the object of the copper, and excited by other means has not like efficacy, it is the measure of its success. How far the remedy has to be carried depends upon the amount of success. A single grain exciting vomiting once or twice may suffice in slight cases, while in others 100 grains producing vomiting from 80 to 100 times may be necessary in others. Sometimes when the excitability of the stomach is quite exhausted, and large doses fail to excite vomiting, this may be roused again by giving two grains of musk every few hours.

We have already said that cases of false croup must have been included among the author's 90; and we may here reproduce M. Guersant's summary of the various forms of angina. He observes that, prior to his father's and M. Bretonneau's writings upon the subject, pseudo-membranous angina, croup, and other affections were confounded together. Those writings and daily practice show that there are five distinct species of angina.

1. *False croup* (stridulous laryngitis) which comes on suddenly and terminates as a cold, not producing false membranes, and being almost always curable. 2. *Pharyngeal diptheritis* is characterized by false membranes lining the tonsils and pharynx, to which they are usually confined. It is generally curable by caustic applications. 3. *True croup* (pseudo-membranous laryngitis) is characterized by the development of false membranes in the larynx. These may be formed primarily in and confined to the larynx, or they may spread from the pharynx or trachea. This diptheritic lesion, which is usually of slowish formation, and sometimes met with more than once in the same subject, is, so to say, localized, and produces death by asphyxia. 4. *General diptheritis*, angina maligna. The true diptheritic poison, which kills the patient just as glanders kills the horse, is an insidious and contagious disease, and is indicated by great prostration, enlargement of the cervical glands, and the deposition of false membranes in the nasal fossæ, the pharynx, sometimes the larynx and bronchi, the vulva, and on blistered surfaces. Neither this disease nor croup causes any gangrenous odour. It does not kill by asphyxia, so that tracheotomy is here contra-indicated. The disease is usually fatal, the patient sinking exhausted, and tonics, with cauterization of the surfaces, are the only means that offer any hopes of benefit. 5. The *true gangrenous angina* destroys any of the parts it attacks, as the tonsils, the uvula, the velum or pharynx, and may complicate any other angina, just as all gangrenes may complicate or terminate all inflammations. This angina is far rarer than any other, is not accompanied at first by false membranes, and always ends fatally.—*Gazette des Hôp.*—*Dub. Hosp. Gazette, June* 15, 1855, *p.* 156.

28.—*Turpentine Bath.*—Dr. Moreau speaks highly of a bath in turpentine vapour in catarrhal affections, rheumatism, and severe neuralgias. The patient is shut in a room into which the vapour is introduced from without—varying in temperature from 45 to 102 degrees. It produces copious perspiration, which greatly diminishes the temperature of the body.—*American Med. Monthly, Jan.* 1855, *p.* 68.

ORGANS OF DIGESTION.

29.—PRACTICAL REMARKS ON THE TREATMENT OF DYSPEPSIA.

By Dr. James J. Ross, Golspie, Sutherlandshire.

Dyspepsia with Intestinal Disorder.—I here intend to do little more than simply refer to ordinary constipation of the bowels, though this is a point in almost all cases of dyspepsia, which requires to be

attended to, and obviated by such means as are suited to the particular case. In general, purgatives should be combined with bitters, so as not to impair the constitutional powers, and given in such quantities as will just keep the bowels regular, without purging. The following is a very good formula, which may be continued for a long time, without losing its effect, or any necessity for increasing the dose :—

No. 14. ℞. Fol. sennæ ℥ii., rad. gentian. ℥ss., rad. zingib. ℥i., aq. bull. ℔ii., inf. per noctem, cola et adde sulph. magnes. ℥i-ii., t. cardam. co. ℥i., spir. ammon. aromat. ℥i. M. ℥iss-ii. for a dose in the morning or at bedtime.

Neither do I mean to do more than simply notice the opposite of this—bilious diarrhœa—induced by excessive or perverted secretion ; though this also must not be neglected.

But there is one form of intestinal disorder, which is not very uncommon in dyspeptic cases, which is very annoying to the patient, and which is sometimes very troublesome to the physician. Two or three hours after a meal, griping pains begin to be felt in the lower part of the abdomen, and across the region of the arch of the colon, which give a great deal of uneasiness, without amounting to the acute pain of colic, and which are sometimes attended with a desire to go to stool, without actual diarrhœa, and without the tenesmus of dysentery. The irritability of the intestinal mucous surface seems to be morbidly increased, so that the passage of the food over this surface gives pain ; and the muscular tone of the gut seems to be at the same time depressed, without either such vascular or follicular irritation as leads to diarrhœa or dysentery. Exposure to cold, and especially exposure to wet, is the common cause of this affection : it is always aggravated after eating ; it will go on, and continue indefinitely, and purgatives rather increase than relieve it.

Now for the treatment of this disorder, I can very confidently recommend the following medicine, which I first became acquainted with, from its having been prescribed in my own case, by the late Dr. John Inglis Nicol, of Inverness, for a severe attack of this kind, brought on by a wetting, at a time when my digestive organs were in a weak state after recovery from fever. I have been fond of it ever since in this kind of intestinal disorder, and have seldom been disappointed with its effects.

No. 15. ℞. Tinct. cinchon. co. ℥iss., t. calumbæ ℥iss., t. strych. n. vomicæ ℥ss. M. A dessert spoonful in a glass of water three times a day, an hour before meals.

If necessary, the natural action of the bowels should at the same time be kept up, by a daily compound rhubarb, or colocynth, and henbane pill before dinner or at bedtime.

A very similar affection occurs in young children, between five and ten years of age, either as a sequela of remittent fever, or without having been preceded by febrile symptoms :—loss of appetite, flatu-

lence, acidity, gripings, irregularity of bowels, and enfeebled tone of the general system. In them we might not like to make free with nux vomica; nor is it necessary, for we will generally succeed in relieving them by giving 3 to 5 gr. of rhubarb, with as much carbonate of soda, twice a day, about a quarter of an hour before breakfast and dinner.

Dyspepsia with Impaired or Lost Appetite and Slow Digestion. (Deficient secretion.)—Of all the forms of dyspepsia, this is the one best entitled to the name of "indigestion," it is really indigestion—digestion performed imperfectly, feebly, slowly, and with difficulty—atonic dyspepsia. The appetite is always impaired, sometimes abolished; the stomach feels that it is not fit to do much work, and, therefore, it does not desire much work to do; it is soon satisfied with food. The patient feels stuffed after a very moderate meal, and says that it remains "like a lump" in the stomach. There is a heavy feeling of uneasiness and fulness across the epigastrium, not amounting to pain, and sometimes a feeling of distension—a desire to loosen the dress over this region. With this there is langour and laziness—a kind of sleepy inactivity. The bowels are slow too; constipation generally exists, and where there is no apparent constipation—where the bowels act daily—still the evacuations are hard, dry, and lumpy, in detached masses, not properly formed, and sometimes these are followed by liquid fæces; or there may even occasionally be diarrhœa for a day or two. The tongue is slimy, without being furred, and frequently, in the morning, there is a brown dry streak down its centre, an accumulation of brownish sticky sordes on the teeth, and an effort to hawk up dry mucus from the throat and pharynx. The digestive organs, in short, are altogether below par; they have probably been overtasked before, and now they flag; their secretion, by which they were enabled to do their duty, has failed, and therefore that duty is no longer performed.

This variety of indigestion may come on gradually in a chronic form from the first, or, as already mentioned, it may succeed, and be the consequence of, one of the more acute states.

In its treatment, we must first remove any remains of these, or any biliary complication that may be present, by the means already mentioned; and then—or at once if there be no such complications—our object must be to restore the tone of the stomach, as regards its nervous, its muscular, and its secretory energies, taking care to sustain at the same time a due action of the bowels.

The simplest case of this variety of dyspepsia is, where the principal and almost only symptom is loss of appetite, there being little or no discomfort at stomach, and the bowels being regular. Here the dilute sulphuric acid often suits well; or with it, we may give the sulphate of quinine, in small doses—not more than ½ gr. three times a day, an hour before meals; or a bitter infusion, such as

No. 16. ℞. Rad. calumbæ ʒii., cort. cinchonæ ʒii., cort. aurant. ʒi., cort. cinnamom. ʒi., sem. coriand. ʒi., aq. bull. ℔ii. M. inf. per horas xii. et cola. A wine glassful three times a day, an hour before meals ;

Or the infus. gentian. co. with a little liquor potassæ. As a general rule, I think, in these cases, the milder and lighter vegetable bitters are to be preferred to the stronger tonics.

Where, with want of appetite, there is also constipation, with tonics as above, the bowels must be regulated by a mild aperient pill, given daily, before dinner or at bedtime ; or, what is better, the aperient and tonic may be combined in the same prescription. When this is done, a less dose of the former will be effectual, and the patient is saved from swallowing a multiplicity of medicines at different hours. Quinine may be combined in a pill with a little ox gall and extract of aloes ; or we may use the following, which I find an excellent formula in such cases, varying, of course, the quantity of the epsom salts to suit the requirements of individual patients :—

No. 17. ℞. Sulph. magnesiæ ʒi., acid sulph. dil. ʒi., tinct. gentian. co. ʒi., aq. ℔i. M. Two tablespoonfuls twice or thrice a day.

Again, in a case of this form of dyspepsia, where not want of appetite, but want of digestion, is the predominating symptom, where the patient complains most of "a lump at the breast," where the food is felt to remain long undigested in the stomach, we have to endeavour to restore the gastric secretions, deficiency of which constitutes the main pathological character of the complaint. Now nothing is found to answer this purpose better than the pulv. ipecacuan. in doses of gr. ss or gr. i twice a day. A full dose of it as an emetic, stimulates the stomach and largely increases its secretions for the time ; but then it exhausts the organ, weakens its tone, and leaves it worse than at first, just as a full dose of a purgative stimulates the bowels, increases their secretions, and then leaves them more constipated than before it was given. But in a case of habitual constipation, we don't give full doses of purgatives, but such doses merely, as will gently solicit the natural action of the bowels, and gently keep up their proper and healthy secretions ; and these doses we combine with tonics to prevent depression of their muscular tone, and sometimes with anodynes to prevent nervous irritation. It is exactly in the same way, and I believe on the same principle, that we use ipecacuan. in slow digestion; we don't give it in emetic doses, greatly to increase secretion, and induce violent muscular contraction ; but in small doses, gently to excite the gastric glands and follicles, and gently to stimulate muscular action : and these doses we combine with mild tonics, such mild aperients as are at the same time somewhat tonic, and occasionally also with anodynes, thus :—

No. 18. ℞. Pulv. ipecac. gr. ss-i., pulv. rhei. gr. iii., ext. gentian. gr. i. M. ft. pil. To be taken twice a day, shortly before breakfast and dinner.

Sometimes instead of the ext. gentian., I use the ext. hyosc. or conii. The effects of this remedy are admirable and speedy, if the patient pays due attention to the quantity and materials of his food.

I do not here, or hereafter, intend laying down rules for eating and drinking in dyspepsia, for I think it is useless to do so; the general rules of diet in such cases are well enough known—not to eat too much, too fast, or too often—that, I believe, includes all that need be said here. And after all, it is a point which each patient must find out, and which he very soon does find out, for himself; though whether he will always have sufficient self-control and fortitude to obey the dictates thus given him by his "inner man," is another matter altogether. But unfortunately his doctor can no more oblige him to listen to, and follow the promptings of, this physical conscience seated in his stomach, than his minister can oblige him to be guided by the "still small voice" of the moral conscience in his mind. The one may prescribe rules of diet, and the other may preach rules of conduct, but in both cases the party himself must work out his own cure.

After the feeling of stuffiness and weight, from slow digestion, has been removed by the ipecacuan., taken in this way for eight, ten, or fourteen days, we may then complete the cure by the sulphuric, nitric, or nitro-muriatic acid, or any ordinary bitter tonic.

I have already mentioned that, on entering upon the treatment of a case of this kind, any existing biliary complication, however slight, must first be removed by appropriate means. This done, tonics will then be required, and will act well; and it is in this case, I think, that iron is the tonic particularly indicated. It is probable that the liver having been torpid and the bile not duly excreted, its elements have contaminated the blood, and affected the composition and vitality of its globules, and that the iron exerts its specific effects in restoring the qualities of the circulating fluid. But be this as it may, I am sure of the fact, that in such a case iron does more good than anything else; and I am partial to it in the following form:—

No. 19. ℞. Mist. ferri co. ℥vi., infus. quassiæ ℥vi. M. Two tablespoonfuls twice a day.

This should be continued for a considerable time, till the local tone of the stomach, and the general strength of the system be quite restored—in short, till the patient has the conscious feeling of health about him once more. And for the first week or two of its use (or at any time after, if the tongue threatens to be yellowish, or greenish, or slimy), it is a good precaution to secure a healthy action of the liver by the following pill:—

No. 20. ℞. Pil. hydrag. gr. xii., ext. taraxaci ℥ss. M. ft. pil. xii. Two every second or third night at bedtime.

Dyspepsia, with or without Vomiting of matters, mucous or ropy, acid or rancid, Heartburn and Pyrosis. (Excessive and perverted secretion.)—The simplest case of this kind is where there is merely

acidity at stomach, for which a little of any alkali may be given—soda, potass, or magnesia—before meals, or when the acidity is felt. This produces perfect relief for the time; and if, after several days use of these, till the state of the urine becomes normal, we give the carbonate of potass or soda, or the liq. potassæ in infus. gentian. c.; or infus. calumb., we shall generally succeed in restoring a healthy tone of stomach, and a sound, vigorous, and healthy digestion, provided always that the patient be careful to avoid those articles of food and drink which his own experience has taught him are most apt to produce acidity. In such cases, Dr. Seymour prefers a powder of rhubarb, calumba, cinnamon, and carbonate of soda, given before dinner, or at bedtime, for a fortnight.

Where the case is somewhat more severe, amounting to decided heartburn, the treatment is still much the same—alkalies to palliate uneasiness, and tonics with aromatics and occasionally sedatives, to restore tone and diminish irritability. The following are good formulæ:—

No. 21. ℞. Inf. gentian. co. ℥ii., aq. calcis ℥ii., t. hyoscyam. ℥i. M. two or three times a day.

No. 22. ℞. Aq. calcis ℥vii., sp. ammon. aromat. ℥ss., t. hyosc. ℥ss., carb. magnes. ℈i. M. Draught twice a day.

Regular pyrosis is much more difficult to treat, and many different medicines may have to be tried, one after another, before a cure is effected; a great variety of them has, accordingly, been recommended by various authorities. Bismuth is, perhaps, the one which has the most numerous testimonies in its favour, and it very often, certainly, proves an excellent remedy, but it must be confessed, also, that it very often fails. I think it is most successful where the pyrosis is slight, where the quantity of ropy fluid is not very great, where it is ejected by expulsion without effort, rather than by actual vomiting, and where it is of an acid character. Here six or eight grains of bismuth, with as much magnesia in almond emulsion, or any aromatic water, with a little mucilage, two or three times a day, will often prove very efficacious. Dr. Graves recommends six grains of bismuth, and 10 grains of magnesia, with 20 grains of gum arabic powder, to be put in a quantity of boiled milk, allowed to cool, and then to be stirred up and swallowed, two or three times a day; each dose of this kind to be immediately followed by 1-16 grain of mur. morphiæ in a table-spoonful of water. I have repeatedly followed his directions; but I cannot say that I have found more good from the medicine so given, than when administered in the more ordinary and simple way. Where the quantity of pyrotic fluid is still small, but is ejected by vomiting, I am partial to a combination of bismuth with pulv. calumbæ gr. v. viii., given shortly before meals; and if the discharge be attended by pain or crampy feeling at the stomach, it is well to add ⅛ or 1-12 grain of mur. morph., or ¼ or ⅓ grain of opium. I do not think bismuth has any effect in allaying that kind of pain

which depends purely on morbid sensibility of the stomach; but it certainly has very considerable effect in the pain of this form of dyspepsia, which depends on morbid and excessive secretion. Where this pain is severe, and where it is attended by cramp of the stomach, the following will be found to give great relief:—

No. 23. R. Ox. bismuth. ʒii., carb. magnes. ʒi., pulv. aromat. ʒss., mucilaginus ʒi., t. opii. ʒi., aq. cassiæ ʒv. M.

Two table-spoonfuls to be taken with an equal quantity of hot water, when the pain is severe, and repeated if necessary. Sometimes, however, in cases of this kind, the pain is so severe, and the cramps or spasms so violent, that it is absolutely necessary to give full doses of tr. opii., and repeat them every hour or two hours, till relief is procured.

In cases of dyspepsia, with excessive secretion, where the eructations or vomitings are not acid, but tasteless or rancid, or of a rotten taste, the acids do most good; the nitric, or nitro-muriatic acid, or what answers very well, the acetic acid, with half a drop or a drop of creosote, given shortly before meals.

Where the quantity of secretion is very large—and it is sometimes incredibly so—we act as we do in other fluxes; we have recourse to astringents to check it. Dr. Budd recommends logwood as being most effectual in such cases; thus—

No. 24. R. Hæmatoxyli ʒi., pulv. cinnamom. ʒi., aq. bull. ʒx. M. inf. per horas quatuor et cola—ʒiss. two or three times a day.

My own favourite remedies in such cases are the pulv. kino c., and the nit. argenti. I have not yet succeeded in discovering indications to guide me in prescribing the one rather than the other. I have sometimes fancied that I had done so, but by and by a case would occur, which showed me it was nothing but a fancy, and scattered it to the winds. I find that I must just submit to be empirical in their use: I give the one, and if it does not do, I then try the other. Of the compound kino powder, 5 grs. may be given three times a day, either alone or with as much bismuth, or pulv. columbæ, or both. The nit. argent. is given in pill, in doses of a ¼ or ½ gr. three times a day, with or without ¼ gr. of opium; and I generally combine it with a little pil. rhei. c., and extract of taraxacum or hop. The oxide of silver, I think inferior to the nitrate in cases of pyrosis.

In obstinate pyrosis, Dr. Burne recommended calomel gr. ss. with opii. gr. ¼, to be given after breakfast and dinner for many weeks together, unless the gums became affected, when he omitted the calomel, and continued the opium alone. Others have recommended the powder, or extract of nux vomica. Of these two plans of treatment, I should be inclined to prefer the latter.

In chronic cases of excessive secretion, unattended by any congestive action, and without much irritability of stomach, tannin would probably be found useful; but I have not tried it sufficiently to enable me to speak with confidence of its effects.

Simple Dyspepsia, with Pain after Food, with or without Vomiting. (Gastralgia, Morbid Irritability of Stomach.)—This is a very common form of dyspepsia, particularly among females. It might be called nervous dyspepsia. It is characterized by two symptoms, pain more or less severe, and vomiting more or less violent. In one patient, the pain is the predominating symptom; in another, the vomiting; while in a third, both are well marked, the pain coming on first, and continuing till it becomes intense, when vomiting succeeds, empties the stomach, and gives relief. These symptoms generally come on after meals, sometimes instantly, on swallowing food, at other times not for a quarter of an hour, an hour, or even longer. It is a common expression of patients, that if they could live without eating they would be well. This, however, is not always the case; sometimes the pain and vomiting are experienced before breakfast in the morning, but in all cases they are always aggravated after food, and equally aggravated after food of any kind, after the lightest of the farinacea, as after the strongest animal diet. In a case of simple nervous dyspepsia, the sensation at the epigastrium is one of pure pain, like neuralgia elsewhere, without heat, and without acidity. The tongue may be clean and even pale. If we press the epigastric region during the presence of the pain, it is increased—in other words, there is tenderness, but only during the presence of the pain, at other times pressure is perfectly well borne. By and by vomiting comes on, and the stomach may either at once and easily empty itself of its contents, or it may not succeed in doing so till after considerable retching. This done, relief is obtained, and the patient is well till the next meal. The food comes up as it went down, more or less digested, but perfectly pure and sweet, and without more than the natural mucus of the stomach being mixed with it. If the retching have been severe, there will of course be some bile along with it; but this is always the consequence of severe vomiting, and we should commit a great mistake did we, on this account, set the case down as "bilious," and treat it by mercurial purgatives. As great a mistake would be, to refer the pain to inflammatory action, and treat it by leeching and sedative doses of calomel. The appetite varies; it may be quite unaffected, or it may be more an empty craving at stomach than a healthy appetite.

When a case of this kind continues long, the patient is apt to become pale and nervous, and falls under the next head of our classification—anæmic dyspepsia with sympathetic disorder. Or from the first, it may be more or less complicated with acidity and excessive secretion; its own special character of morbid irritability being still, however, sufficiently predominant to mark its type and guide our diagnosis and treatment. Thus, we often see a case, where, immediately after a meal, the peculiar pain of nervous dyspepsia comes on, continues for an hour or more, and then ends with a regular attack of pyrosis and vomiting of a large quantity of its peculiar secretion; or, without actual pyrosis, the pain may be combined with heartburn

and acidity, and the vomited matters may be quite acid and sour. In short, the two forms may be variously combined, and apparently confused; but a little care on the part of the patient in observing, and on the part of the physician in investigating, the symptoms—their combination and sequence—will sufficiently serve to show which form any particular case in the main belongs to.

In the simple form of dyspepsia from morbid irritability of stomach, where nervous mobility, or a kind of neuralgic irritation is the pathological condition, prussic acid has the most decided good effects. It allays pain, prevents vomiting, and so blunts the morbid sensibility of the stomach, as to allow it duly to perform its function of digestion. It may be given in plain water, or almond emulsion, or a bitter infusion, about a quarter of an hour before meals. I generally prescribe it thus:—

No. 25. ℞. Acid. hydrocyanici *(Scheele's strength)* gtt. xvi., t. calumbæ ʒss., aq. font. ʒiiiss. M.

A table spoonful three times a day, increasing the quantity up to gtt. xxiv., which, of course, raises each dose of the acid from two to three drops, beyond which I rarely find it necessary to go. If, with the pain, there be also acidity or heartburn, it may be given thus:—

No. 26. ℞. Acid. prussic gtt. ii.-iii., carb. sod. ℈i., t. gentian c. ʒss., aq. ʒi. M. three times a day;

and if the vomiting be severe and continued, the following draught will be often found effectual:—

No. 27. ℞. Acid. prussic, gtt. ii.-iii., creosot. gtt. i.-ii.-iii., liq. morph. gtt. xx., carb. soda, gr. xx., aq. ʒiss. M.

The prussic acid seems most applicable to those cases where the pain comes on very soon, or almost immediately, after food. And I think it is most useful, where the pain is the leading feature of the case, that is, where there is rather morbid sensibility than morbid irritability of the stomach. I think its power in allaying vomiting is more secondary; that it does so by first obtunding the nervous sensibility of the organ; at least, I have found it do more good where the vomiting is preceded by pain, than where it is not.

In simple vomiting of the food from atony of the stomach, calumba is an admirable remedy: either five or ten grains of the powder two or three times a day, or according to the following formula:—

No. 28. ℞. Infus. calumbæ. ʒvi., liq. potass. ʒiss., t. humuli, ʒiii., aq. piment. ʒiss. M. One or two table spoonfuls twice or thrice a day.

Perhaps the next best remedy to prussic acid in this form of dyspepsia, is the nitrate of silver, or the oxide, ¼ or ½ gr. of either three times a day, in pill.

When the pain is longer of coming on after a meal—an hour or more—the case still belonging to this same variety of dyspepsia, the utmost advantage will be derived from that most admirable prescription of Dr. Abercrombie:—

No. 29. R. Sulph. ferri gr. ii., pulv. aloes gr. i., p. aromat. gr. v. M. Three times a day.

This is a medicine of the good effects of which, in such cases, it would be impossible to speak too highly; but it is so well-known that it is unnecessary for me to do more than thus simply add my own humble testimony to its merits.

In those mixed cases to which I have referred, of morbid sensibility and irritability of stomach, combined with pyrosis and excessive secretion, the nit. argent. often suits well, as it meets both points; or what often suits as well or better, we may give R. No. 25 shortly before meals for the former, and then, when the latter begins to be felt after meals, use R. No. 23, as above directed.

In some cases, which must be referred to this order of dyspepsia, wherein the only symptom was painful digestion, without vomiting, and without the heaviness and weight of slow digestion, I have found the following very useful:—

No. 30. R. Ext. hyosc. gr. ii., ext. gentian. gr. ii., ext. stramon. gr. ss., pulv. opii. gr. ¼. M. Fill to be taken half an hour after meals.

In some such cases, too, I have found the combination of prussic acid with morphia, as directed, after it had failed given by itself: Thus,—

No. 31. R., Acid prussi. gtt. xxxii., liq. mur. morph. ʒiii., mist. amygdal. ʒviii. M. A tablespoonful three times a day.

The treatment of nervous dyspepsia often fails of success, not from any want of efficacy in the remedies, but from want of perseverance in the patient. As soon as the pain is relieved, and the vomiting ceases, the medicines are thrown aside. But this won't do; they, or at all events the tonic portion of them, must be continued till the vigour of the digestive organs be quite restored, or a relapse is certain to occur.

Anæmic Dyspepsia, with Sympathetic Disorder.—Any form of dyspepsia, if long continued, may, through the imperfect nutrition of the system which is its necessary effect, lapse into this variety; but it is a more frequent consequence of nervous dyspepsia than any other. At the same time, it must be borne in mind, that, though the dyspepsia may be the primary disorder, leading to anæmia secondarily, perhaps as often as the anæmia is the primary affection, the dyspepsia and sympathetic affections of other organs being secondary to, and consequent upon it. As regards treatment, fortunately this makes little difference, as in almost all cases, if the system can be put to rights generally, a corresponding improvement will take place in the digestive and other organs locally.

For this purpose the usual treatment of anæmia must be put in force: exposure to fresh air and sunlight, exercise short of fatigue, avoidance of all mental irritation, and the wear and tear of business, nutritious diet, with regular hours, and, in the way of medicine, some one or other of the preparations of iron. The sulphate answers well

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alone, or if the bowels require assistance, combined with aloes, as in Abercrombie's formula (℞. No 29); or, in solution with sulph. quinæ and sulph. magnes. and the dilute sulphuric acid, or in pill with quinine, camphor, and the ext. aloes, with ext. hyoscyami. In females, where there is also amenorrhœa, I am very fond of giving 30 drops of the tinct. mur. ferri, morning and evening, and a pill daily at dinner-time of the sulph. ferri, pulv. aloes. and ext. conii, 2 grains of each. When the appetite is deficient, the iron may be given with any of the compatible bitters, as quassia or calumba. The carbonate is a useful form, either in powder alone, or with rhubarb and calumba, or in the shape of Griffith's mixture: some have recommended it as being most energetic when taken quite freshly prepared—in fact at the moment of precipitation, as in the following prescription:—

No. 32. ℞. Carb. sodæ ʒi., tinct. calumbæ ʒi., aqua ℥iss. M. et solve, et dein adde t. mur. ferri ℥i. M. Draught to be taken twice a day.

In fact it is not a matter of much consequence what particular form the iron is given in, so it be continued long enough. As a general rule it is best given shortly after meals. Those who can afford it may combine the advantages of travel and change of society with the remedial benefits of iron, by a temporary sojourn at a chalybeate spring.

Of the sympathetic affections concomitant with dyspepsia, disorder of the heart's action is perhaps the most frequent. One form of it is sometimes met with in bilious dyspepsia: the heart's action is slow, and labouring, and irregular: it sometimes seems as if it were going to stop altogether, giving a few feeble distant beats, the impulse of which does not reach the artery at the wrist, so that the pulse intermits; and then, after one or two instinctive and involuntary long-drawn sighs, it gives a violent thump, and goes on again. It requires no special treatment; it very soon disappears when all hepatic congestion is removed by the remedies proper to the circumstances. It is worthy of remark, however, that these circumstances are sometimes exactly reversed; obstructed circulation through the right cavities of the heart may be propagated backwards along the vena cava ascendens, so as to cause venous congestion in the liver, and give rise to "biliary" disorder, and even a jaundiced tinge of the skin. And we shall find that, after relieving the loaded heart by a few leeches, and small doses of antimony, digitalis, acetate of lead, or the like, these symptoms will yield to very gentle mercurial alteratives; while, unless this is done, they will resist the most energetic treatment that can be prescribed. The lock wont be forced by any violence, but it opens at once to the right key!

A very similar affection of the heart sometimes attends long-continued stomach disorder from slowness of digestion, and yields to the treatment appropriate to that condition. It is generally only felt after meals, during digestion.

The reflex irritation of the heart, caused by excessive and acid or acrid secretions in the stomach is generally relieved by the antacids, absorbents, and aromatics, used for the relief of the primary malady. The nit. argent. is particularly applicable to many such cases. Where the irritability of the heart is such that its action continues troublesome, after the acid contents of the stomach have either been neutralized by alkalies, or ejected by the pyrotic flow or by vomiting, nothing answers better than a little prussic acid, with tincture of hop in mucilage and camphor mixture, to which a few grains of bismuth may often be added with advantage.

But it is in chronic cases of nervous dyspepsia, and particularly where there is also anæmia, that the heart is most liable to be sympathetically affected. In most cases, the gastric irritation travels backwards to the true spinal cord, and is thence reflected along the cardiac nerves to the heart; but I have no doubt that, in other cases, the source of irritation is centric, seated within the spine itself; for we meet with instances where both the epigastric and the cardiac affection seem truly to depend on what is termed "spinal irritation;" where both are brought on or aggravated by pressure over certain of the dorsal spines, and where both yield readily to a few leeches or a sinapism, or a blister applied over the tender vertebræ, without any other treatment whatever. This I have seen over and over again; and therefore it is well, in all cases of the kind, to examine the spine; and if we do find a tender spot, a few leeches, or cupping, or a blister over it, will very much expedite the cure.

One patient will complain most of palpitations and irregular action of the heart; another of pain in the region of the heart; and another both of palpitation and pain. The heart is irritable, easily excited, and its action is quick and hurried, irregular and tumultuous, often with visible impulse, though this impulse is rather diminished than increased in force. It is generally worst after a meal, though at all times the organ continues so irritable, that a start, or any slight excitement will bring on palpitation. When there is flatulence, it is always worse, and is then accompanied by a sense of oppression in the chest. Again, the pain may be seated at one small spot in the region of the heart, or more or less diffused over this region, or it may extend up towards the left shoulder, or even down along the inside of the left arm to the hand. It may be of any intensity—from oppressive dulness up to the most severe neuralgia. If the patient be anæmic, the breathlessness, &c., of this state will be superadded to an aggravated degree of the heart symptoms. It is of course necessary to have recourse to all the aids derivable from auscultation and percussion, in order to establish our diagnosis of the nature of the heart affection—whether it be functional and sympathetic, or structural and organic.

For this form of heart affection, the two principal remedies are iron and nitrate of silver; the former, where disturbed action of the heart

is the main feature, the latter, where with disturbed action there is also pain. In the latter circumstances the nitrate of silver has an excellent effect: it may be given thus:

No. 33. ℞. Nit. arg. gr. iii., p. opii. gr. iii., p. rhei. gr. xii., ext. humuli gr. xii. M. Ft. pil. xii. One three times a day.

To this internal treatment a belladonna plaster over the heart will be found a powerful adjuvant. These means will very generally relieve the painful feelings of the heart, and also materially diminish the irritability and excited action of the organ; and then the cure may be carried forward to its completion, by iron, and the other remedies appropriate to the condition of the digestive organs. Where there is no pain, these latter means (including the iron), may be commenced at once; but even in these cases, two or three weeks use of the nitrate of silver will do great good, as, in addition to its more specific virtues, it is an excellent tonic. Sometimes the ext. aconit. may be usefully substituted, in combination with it, for the extract of hop. Of course, in all cases, the bowels must be kept regular, and the diet attended to, bulky and flatulent articles of food being avoided. As to wine and stimulants in general, the patient must be guided by the effects they are found to produce. As a rule—at all events, at first—they do harm; they are not needed, and had best be avoided. Excessive smoking and snuff-taking have a very deleterious effect in these cases of irritable heart, and indeed, in dyspeptic disorders in general.

Various other organs are occasionally sympathetically affected in cases of dyspepsia; and dyspepsia is frequently itself but a portion of a more extensive disorder affecting various organs, or the whole system. Thus, we have various affections of the brain and organs of sense, various disorders of the urine, and sometimes, though more rarely, of the lungs, dependent upon indigestion; and *vicê versâ*, the stomach is often secondarily affected by cerebral and renal diseases, or suffers in common with other parts, in general diseases of the circulating fluids, or of the system at large, such as scrofula and gout. Here, as elsewhere, in medicine, we must never forget that, as some one has well remarked, disease is something more than a "chain of many links," of which, if a single one be broken, the strain of the whole chain is destroyed; that it is a "rope of many strands," so twisted and twined and interlaced, that to relieve its tension, the whole must be cut through. I cannot, however, enter upon the consideration of such extensive subjects as these, as they would lead me too far away from the immediate purpose of the present paper.

Flatulent Dyspepsia.—In almost all cases where there is irritation and diminished tone of the gastric mucous membrane, flatulence is a consequence to a greater or less extent; it is therefore a common symptom in the various forms of dyspepsia. But sometimes it is so great, as to constitute the most troublesome symptom, and the main feature of the complaint. In most cases the stomach relieves itself

from time to time, by eructations or belchings, but in others, its muscular coat has so lost tone, that it is able to contract but very feebly, while at the same time there is spasmodic closure of the cardia and lower portion of the œsophagus, and then the epigastrium becomes swollen and absolutely tympanitic, the stomach is literally blown up with wind; in this distended state it presses upon, and obstructs the functions of the heart and lungs, and the patient suffers dreadfully, till at last an eruption of flatus takes place, and relief is procured.

Before prescribing specially for flatulence, as a symptom in any case of dyspepsia, we must ascertain whether or not there be any inflammatory action present. If there be, the proper remedies would be, swallowing small bits of ice, small doses of nit. potass. with carb. sodæ —in short, those recommended for inflammatory dyspepsia, particularly counter-irritation over the epigastric region. If the irritation be not of an inflammatory character, if other dyspeptic symptoms are absent, or slight, and if the stomach be able to relieve itself by eructations, we shall effect much good by the following mildly aperient and carminative powder:—

No. 34. ℞. Pulv. Gregorii, p. aromat. āā ʒss. M. Half a teaspoonful twice or thrice a day, stirred in a little hot water.

But in order to give permanent relief, we must regulate the bowels, and strengthen the digestive organs by tonics, combining them with carminatives. I find the following answer very well:—

No. 35. ℞. Asafœtidæ gr. xxxvi., p. rhei. gr. xii., ol. cajeput. gtt. xii. M. ft. pil. xii.

No. 36. ℞. Infus. chirettæ ʒxi., tinct. zingib. ʒi., t. hyosc. ʒii. M. Two of the pills to be taken every night at bedtime, and two tablespoonfuls of the mixture morning and mid-day.

Where the air collects in such quantities as to distress the patient by the tympanitic distension, caused by its accumulation and retention in the stomach, I know no better means of relief than applying a hot flannel sprinkled with turpentine over the epigastrium, and giving, at the same time, half a teaspoonful of powdered ginger in about 4 ounces of water, as hot as can be swallowed. This very rarely fails to give speedy ease by abundant eructations of wind. The seldomer indeed it is had recourse to the better; but in urgent cases it must be done; and the necessity for its frequent repetition will be much diminished by putting the patient in the intervals, upon some such treatment as that just recommended (℞s. No. 35, 36), and at the same time giving an occasional dose of ol. terebinth. with ol. ricini—ʒss. of each—an hour before getting up in the morning, so as to act freely on the bowels.

Too long fasting, gulping down food in a hurry without chewing it properly, and eating immediately after exercise or fatigue (whether bodily or mental), are points specially to be shunned by flatulent patients. The effect of the various articles of diet must be also strictly

watched, so that they may "choose the good and avoid the evil;" and in general it is well to allow them a little brandy and water, or good sound sherry and water, in the midst of, or immediately after, the principal meal of the day.—*Edinburgh Med. Journal, Sept. and Oct.*, 1855, *pp.* 216 *and* 319.

30.—ON THE FORM OF DYSPEPSIA WHICH OFTEN PRECEDES AND ATTENDS PHTHISIS.

By Jonathan Hutchinson, Esq., Surgeon to the Metropolitan Free Hospital.

[Dr. Wilson Philip was the first to point out the connection of dyspepsia with phthisis. Many other authors have since noticed it, but especially Dr. T. J. Todd, who with great ability, refers it to certain disordered abdominal functions.]

Dr. Todd, in his description of "strumous dyspepsia," (see his article on Indigestion in the 'Cyclopedia of Practical Medicine') although treating of the diseases usually classed as struma, and occurring in children, rather than of phthisis, has some observations which may, without much risk of error, be transferred to the latter disease. Indeed, he includes, under the term struma, an idea of its being of tuberculous nature, and there are probably no good reasons for supposing that the constitutional symptoms would differ materially in the case of tubercle in the lungs, from what they would be in tubercle of the lymphatic glands.

After a detailed enumeration of symptoms, he sums up as follows:—"The phenomena of this disease, its whole complexion and character, sufficiently indicate a congestive state of the hepatic system. Were we allowed to assume, as the proximate cause of the disease, derangement of the function of the liver, all the other consequences would follow; for, though we may not know precisely what share the function of the liver may have in the process of sanguification, we may easily understand how it may interrupt and interfere with this process, leading to a cachectic state of the fluids, from which result tubercles, and other semi-vital and semi-organic productions."

Dr. Hughes Bennett, one of the last writers on the subject, has, in his work on Pulmonary Tuberculosis, the following statements:—"From facts of a certain kind it has been supposed that hereditary predisposition, a vitiated atmosphere, changeable temperature, certain occupations, humidity, particular localities, absence of light, and so on, predispose to phthisis. Very frequently several of these are found united, so that it is difficult to ascertain the influence of each. When they so operate, however, they invariably produce in the first place more or less disorder of the nutritive functions, and are associated with dyspepsia or other signs of mal-assimilation of food. In another part he says, "The peculiarity of phthisis, however, is that an excess

of acidity exists in the alimentary canal, whereby the albuminous constituents of the food are rendered easily soluble, whilst the alkaline secretions of the saliva and of the pancreatic juice are more than neutralized and rendered incapable either of transforming the carbonaceous constituents of vegetable food into oil, or of so preparing fatty matters introduced into the system as will render them easily assimilable." He believes that the absorption of fat is effected by a mechanical process of emulsification, each molecule of oil being surrounded by a pellicle of albumen, and in that condition readily entering the intestinal villi. In phthisis he believes that very little fat is taken up on account of the removal of the albumen dissolved in the excess of acid. No mention is made of disorders of the functions of the liver or pancreas. Now there are several serious objections to this theory. First, granting that there is excess of acidity, how is that excess produced? Is it not in itself indicative of functional disorder of some of the secerning viscera? And, on the other hand, I find no clinical evidence that such acidity is always present. I freely admit that it is a frequent symptom, but not by any means an essential one in the dyspepsia of phthisis. The evidence adduced by Dr. Bennett himself on this point is loose and vague. Again, if the faulty assimilation of fat be merely mechanical, and caused by the presence of an acid fluid in the duodenum, a neutralizing dose of alkali before or with the meal should strike at what Dr. Bennett deems the very essence of phthisis. But we know that alkalies possess no such power. Whilst, therefore, I accept as valuable Dr. Bennett's opinion as to the frequency of the dyspeptic stage in phthisis, I cannot agree with his pathological views as to the nature of that dyspepsia.

Mr. Ancell, whose recent and voluminous Essay on Tuberculosis manifests great research, accepts to the full Dr. Todd's views as to strumous dyspepsia. He does not, however, develope them, or add much to their precision.

Here it may be well to state clearly that the argument held is not that all indigestion leads to phthisis, but that there is a peculiar form of it which has a natural tendency to end in that disease. The symptoms denoting that form have already been stated, but the question yet remains to be answered, Are they not also common to many other conditions distinct from the tuberculous? The comparative neglect with which the various forms of dyspepsia have unfortunately been treated, renders it impossible to answer this question definitely. We have no accurate observations as to the especial symptoms most frequent in the dyspepsia which attends scurvy, that of chlorosis, that of gout, that frequent in cancer, &c. My own inquiries have been far too limited to permit of the production of anything like statistical evidence on these points. From some facts, however, it seems highly probable that the form described is *not* common to other conditions of the system. The subjects of emphysema of the lungs, who almost always suffer severely from indigestion, are generally very fond of fat;

and their inconveniences more usually concern flatulence, water-brash, &c., than heartburn, or any of the states dependent on undue acidity. The gouty alderman suffers from his own form of indigestion, but it is not the one above described; and he remains to the last a lover of turtle fat and of alcohol. The chlorotic patient has peculiar disrelishes, but not either in her case is there, as far as I have been able to observe, any distaste for fatty aliment in particular, nor unless as a complication tuberculosis be imminent, any marked development of acid dyspepsia. The observation respecting the general fondness for fat in the subjects of emphysema, is one in the correctness of which I have much confidence, and which assumes great importance when it is remembered that the disease is one, to some extent, antagonistic to phthisis, and that the condition of the blood, as to oxygenation, is opposite in the two.

With regard to the difficult assimilation of fatty matters, I am inclined to believe that this symptom may be made great use of for purposes of prognosis. Exceptions undoubtedly occur; but as a general rule, it might probably be safely laid down that the severity of the tubercular dyscrasia is measured by the difficulty with which cod-liver oil is borne. The need for that remedy is mostly in exactly inverse ratio to the facility with which it is digested. In the worst and most hopeless cases of phthisis, the patient's countenance will contort itself into an expression of greater disgust than words could convey at the very mention of fat, or oil; and butter, sugar, &c., and even alcohol, are often included among the articles for which there is an intense disrelish. On the contrary, if a patient have once got to really like the oil, to be able, as he would say, "to drink it," and more especially if at the same time he have acquired a liking for other varieties of fat, there is every hope that the tubercular constitution is in abeyance, and that, provided the local lesions have not too far advanced, a recovery may ensue. The constancy with which this change in taste is observed in cases of recovering phthisis is very remarkable; and the observation will, I have no doubt, be confirmed by any one who will make inquiries on the subject.

With regard to the opinion which has been expressed respecting the proneness of those who have an habitual disrelish for fat to become, sooner or later, the subjects of tuberculous disorder, a little explanation may be needed. It is not intended to imply that such is always the case. Undoubtedly a considerable number of such go through life in the enjoyment of good health. I believe, however, that it would generally be found, on inquiry, that these exceptions are more apparent than real; and that if there is an instinctive dislike for adipose matter, there is, to compensate it, a fondness for some other hydrocarbon, such as butter, sugar, or alcohol. As to the frequency with which, amongst a family of others, a child of scrofulous constitution is marked by his peculiar dislike to fat, I feel well convinced; and am not less strongly so, that, comparatively speaking, such a child is

more prone than others to become the subject of pulmonary phthisis. The most ominous form of all, however, in which this symptom can show itself, is when a person previously fond of fat rather quickly loses relish for it. Such an occurrence should be regarded with the most serious suspicion, more especially if attended by any of the other symptoms of acid dyspepsia. The tubercular dyscrasia is not far off when these are developed.

Passing now to speak of the treatment of the dyspepsia of phthisis, it can scarcely be necessary to say that it must not be assumed, from what has been laid down as to its essential characteristic being the non-assimilation of hydro-carbonaceous matters, that the forcible administration of such is the measure indicated. It would be perfectly useless to order the subject of confirmed dyspepsia of this kind to take fat, in the first place his palate would refuse it; and, secondly, if swallowed, his stomach, pancreas, and liver are quite incompetent to its digestion. It is not, however, by any means so with cod-liver oil. Whether it be that the biliary principles it contains furnish the necessary material for the assimilation of the oily ones, or whether these biliary principles, or the minute proportion of iodine, bromine, &c. present exert a beneficial influence on the viscera at fault, and excite their latent functions, cannot be positively answered, but the fact is nevertheless certain that the fish oils can be endured by the subjects of most aggravated dyspepsia, and will relieve symptoms which all *à priori* reasoning would have expected them to aggravate. I have seen the liability to frequent sick headaches and to attacks of acidity disappear under the exhibition of cod-liver oil, and I have seen, over and over again, the same remedy agree well in cases in which a red abraded tongue, with prominent papillæ, &c., had seemed to forbid its use. As the result of extended and careful observation on this point, I am obliged to confess that I know of no single symptom which would have any weight whatever in inducing me to defer the trial of this oil in a case of phthisis. This opinion is probably at variance with that of many of more experience than myself, but I yet cannot help entertaining it. That in a great many cases an introductory treatment is required cannot be doubted, but to recognize such cases before trying the oil is a matter, as far as my knowledge extends, of impossibility. In all cases of phthisis I should, therefore, begin with the oil, and if it would agree persevere with it, and gradually pass to the use of other fats in addition. If, however, the oil cannot be taken, there will then be called for on the part of the physician the greatest exercise of skill and prudence in the treatment of the dyspepsia by other remedies. A stomachic mixture, which is much employed by Dr. Peacock, at the Hospital for Chest Diseases, and which consists of a cold infusion of rhubarb, calumba, and ginger, with the addition of an alkali, will often serve an admirable purpose. There are certainly cases, however, if I am not mistaken, in which no remedy will so certainly achieve the end in view as mercury in small

and repeated doses. Its administration requires the greatest caution on the part of the prescriber, but if that be duly exercised the resulting benefit will often be surprisingly great. And here it may be permitted to digress a little in order to ask attention to the circumstance, that all who have investigated the dyspepsia of tuberculosis have arrived at nearly the same conclusions as to its treatment, and that the conclusions of all are in active support of the theory of impaired hepatico-pancreatic functions. Mr. Abernethy's treatment is too well known to need allusion ; the same, also, might be said of Dr. Wilson Philip's ;—both used mercury freely. The latter, indeed, records an extraordinary case, in which there was every reason to believe the mesenteric glands far advanced in tubercular disorganization, and in which restoration to perfect health ensued under a course of mercury, extended without intermission over more than a year. Among the advocates of mercury in phthisis we have four of the ablest practical physicians that have ever adorned our profession, Dr. Marsh, Dr. Graves, Dr. Stokes, and Dr. Munk. It is true, that between the practice of these and of Dr. Wilson Philip there was the important difference, that the one gave a short course of full doses, and the other a prolonged one of very small doses ; but notwithstanding this, both may be quoted as pointing to the same pathology of the disease. Dr. Todd, whose excellent article has already been alluded to, advocates a nearly similar plan. Those, also, who do not employ mercury, generally use nitro-muriatic acid, the vegetable alteratives, the alkalies, &c., the effect of which upon the functions of the viscera referred to is to some extent the same in nature.

As soon as, by treatment, the relish for the hydrocarbons has been restored they should at once be supplied. Pork chops, bacon, butter, cream, sugar, dried fruits, and alcohol in its various combinations should be recommended. The comparative immunity enjoyed by the intemperate from tuberculous disorders has long been matter of remark, and has recently been made the subject of some interesting, though not very conclusive, statistical calculations, by Dr. Atkinson, of Wakefield. A case came under my notice two years ago, in which the patient, who had suffered all the symptoms of confirmed phthisis, and had been told by an experienced stethoscopist that such was the case, regained his health, as he believed, solely from the immoderate use of beer. He had engaged himself as pot-boy, and had, in that situation, drunk almost *ad libitum*. I made a careful examination of his chest, and had every reason to believe that the case was one in which large vomicæ were in process of cure. It should be stated that the improvement had begun under the use of cod-liver oil prescribed by Dr. Cotton, at the Brompton Hospital, but it had continued, and even progressed more rapidly since it was left off.—*Med. Times and Gazette, May* 5, 1855, *p.* 434.

31.—ON TUBERCULAR PERITONITIS IN ADULTS.

By Dr. Augustus Kyburz, of Zurich.

[This is a discourse which has been hitherto little regarded, and though not unfrequent, its special pathology is not well understood.]

From the consideration of the diagnostic signs of these cases, we see how uncommonly difficult it is to recognize this form of disease at its commencement. The disease begins, according to the author's observations, generally with a chill, which is then sooner or later followed by the abdominal symptoms. When the disease is in its early stage, and the deposition of tubercle consists in scattered granulations upon different parts of the peritoneum, and the latter occupies the superior region of the abdomen, the belly is puffed up and of a roundish form. If the tuberculosis is propagated from one point (in four cases it was the ileo-cœcal region), the abdomen becomes irregularly distended, and has a doughy and resistent feel. If particular parts are especially involved, various intumescences can be felt, which may readily be confounded with lesions of the spleen, liver, and uterus. In connection with this deposition and progressive development of the disease upon the peritoneum, the most various and opposite symptoms are called forth, to wit, tension of the abdominal walls, prominence of the liver and spleen, so also of the heart, compression of the lungs and dyspnœa; the organs also become pressed downward into the cavities in which they most readily subside; thus the author found in one case the vaginal portion of the uterus crowded down even to the labia. Through the pressure of tubercular degenerated lymphatic glands upon the excretory ducts of the liver, or through pressure of the peritoneal sheets one against the other, since they include the gall-ducts between them, arises the icteric appearance and the accompanying coloration of the stools. Disturbance of the urinary secretion from pressure, is not a rare phenomenon. In one case ischias originated from pressure upon the nerves. Pressure upon the vessels naturally produces disturbance of the circulation, thence œdema of the feet. If the vena cava becomes compressed, the veins appear swollen upon the distended abdominal walls. In one case coagula had been formed in the veins. The phenomena of vomiting, diarrhœa, or constipation, and loss of appetite, are results of the disturbed action of the organs, partly from pressure, partly from morbid degeneration of the intestinal walls.

In reference to the general symptoms, we can, according to the author, determine the following rules. There is usually a slight febrile condition existing, the pulse even in the morning being over 90 per minute, very often accompanied with colliquative sweats. We observe in the patient a progressive emaciation and loss of strength, as well as an alteration of the colour of the face, but rather paleness with circumscribed redness of the cheeks, than the straw-yellow colour peculiar to carcinomatous affections.

The shortest duration of the disease was four weeks, the longest six to seven months. The issue in five cases was fatal; only a single patient left the hospital in a satisfactory condition, and the author doubts whether he was really cured. Death followed from gradual wasting, or from the occurrence of various complications. Ulcerations of the intestines were observed only in one case, perforation in none.

The treatment was the same as in every other form of tuberculosis, the administration of cod-liver oil a long time continued.—*Schmidt's Jahr.—American Med. Monthly, May* 1855, *p.* 346.

32.—*Function of the Sigmoid Flexure.*—O. Kohlrausch ('Zur Anatomie in Physiologie der Beckenorgane,' &c.. Leipsig, 1854), regards the sigmoid flexure in man as serving the purpose of relieving the sphincter ani from pressure.—*Association Journal.—Dublin Hospital Gazette, Oct.* 15, 1854, *p.* 285.

33.—*Spasmodic Stricture of the Bowels.* By Dr. J. W. F. Blundell.—I would beg to suggest to members of the profession the trial of a simple plan of treatment in the above disorders, which I have found most successful in several instances. It is nothing more than a vibratory or stimulating application to the sphincter ani, with a blunt wooden instrument. It will be found to relieve the severe "bearing down," and other pains endured by patients when the bowels have been long confined, and in cases where there appears to be stricture either of the rectum, or lower portion of the sigmoid flexure of the colon. The operator should begin gently at first, increasing the strength, as the pain subsides, and must place the point of the wooden instrument (a common ruler would do) on the front margin of the sphincter, just at its juncture with the perineum.

I need not attempt to offer an explanation of how it acts on the parts or system, as the fact remains. I know it does act more powerfully than almost any other means, while it is so perfectly harmless, that the patient, before unable to rest in one position, and labouring under unremitting distress, is relieved in a few minutes, and enabled to procure sleep until the medicines previously given begin to act.

I can only add, that I hope so small a thing as this may not prove too simple to claim scientific attention.—*Med. Times and Gazette, June* 23, 1855, *p.* 634.

34.—*Chloroform in Colic.* By M. Aran.—M. Aran states that repeated experience convinces him of the great value of chloroform given internally, as a curative agent in colic, employing it also externally until the acuteness of the pain is somewhat subdued. No absolute dose can be laid down; for, while cases of medium intensity may

require but 60 drops per diem, severe ones may require from 100 to 300 drops. A portion is given in water, suspended by mucilage, and about a third of the quantity in one or two lavements. The entire quantity should be given in divided doses, as the effects are soon dissipated. From the second, or more rarely the fourth or fifth day, the colic is relieved, but a less quantity of the chloroform must be continued until stools are re-established, which will usually be the case spontaneously when food is given. In twenty-one cases only three required the use of purgatives. Still, in severe cases, the duration of treatment is abridged, and relapse rendered less probable, if the first success of the chloroform be followed by a dose of castor oil or seidlitz water. In chronic colic, occurring in persons who have often had the disease, and where obstinate constipation is accompanied by moderate pain, chloroform is of no avail, active purging alone succeeding.—*L'Union Médicale.—Med. Times and Gazette, June* 23, 1855, *p.* 633.

35.—*Tormentilla as an Astringent.*—The decoction of tormentilla, a remedy in not very general use, is, we observe, a great favourite with Mr. Hilton, of Guy's Hospital. It is employed in cases of piles, passive hemorrhages, diarrhœa, &c., as a tonic and astringent. A few weeks ago, Mr. Hilton ordered it (in doses of an ounce and a half every three hours) to a patient in whom hemorrhage from the bowel had occurred four days after an operation for hernia, and took the opportunity of observing to his class that it was one of the most efficient vegetable astringents that he knew.—*Med. Times and Gazette, July* 7, 1855, *p.* 8.

36.—*On Cirrhosis.* By Dr. C. Handfield Jones, F.R.S.—As far as my experience goes, hematemesis generally is one of the earlier secondary results of cirrhosis, ascites replacing it, if it has existed, at a later period. In my work on Morbid Conditions of the Stomach, page 59, a case is mentioned in which death occurred from vomiting of blood, without any history of previous illness extending further back than a week. The treatment of cirrhosis, and of course of its secondary effects, is, at the present day, a sad opprobrium to medicine. The bar, which is set to the free course of blood through the portal vein, impedes, to a great degree, the absorption of any medicines given by the mouth. Diuretics produce no effect, because they never get into the blood, and so never reach the kidneys. Dr. Christison's recommendation of applying fomentations of digitalis infusion to the abdomen, and thus directly arriving at the general circulation, is certainly a promising one; but in one case in which I tried it, it produced no good effect. I cannot but think that the employment of baths of Kreuznach water, now known to be often efficacious in causing the disappearance of fibroid tumours of the uterus, might be tried in

cases of cirrhosis with some reasonable hope of benefit. These might be conjoined with frictions of cod-liver oil over the general surface, Surely it would be better to try perseveringly some plan of this kind, rather than the routine treatment of diuretics and purgatives, whose result in most cases is so unsatisfactory, and which at the most aims merely at the removal of a symptom.—*Med. Times and Gazette, Aug.* 25, 1855, *p.* 184.

37.—*Oily Frictions in Mesenteric Disease.* By Dr. Baur.—In this paper, Dr. Baur reports the great success that has attended the friction of the whole surface of the body, night and morning, with a sponge imbibed with tepid oil, the patient being kept in bed, wrapped in a blanket, for two hours after. The first effect produced is abundant general sweating; the skin, losing its dry aspect, becomes supple, turgescent, and of a fresh colour, a rubeloid eruption sometimes occurring. A secondary and highly beneficial calming effect is produced, which is manifested in the production of tranquil sleep. As a third, there is increased secretion, especially of the kidneys and liver. It is evident that many affections may be rendered tractable by such an agent, and Dr. Baur regards it as almost possessed of specific properties in diseases of scrofulous origin, as tabes mesenterica, or glandular tumours. He believes the frictions are powerful adjuvants in scrofulous hydrocephalus, and may even prove curative in phthisis, when steadily persevered in.—*Med. Times and Gaz., Sept.* 8, 1855, *p.* 245.

38.—*Of the Employment of Borax in Injections in the Diarrhœa of Children.* By M. Bouchut.—It is well known how difficult it sometimes is to check certain forms of diarrhœa in young children, during the period of their first dentition. Two kinds of diarrhœa are met with amongst children at this age, the one symptomatic of organic disease of the intestinal mucous membrane, the other an idiopathic affection, catarrhal in its nature, sometimes proving fatal, yet leaving behind no appreciable lesion. In this last complaint it is that the *lavements* of borax recommended by M. Bouchut are so successful. The beneficial action of this remedy on the mucous membrane of the large intestine is regarded by M. Bouchut as analogous to the good effects of borax on the mucous membrane of the mouth, especially in apthous affections. Borax has this advantage over other salts generally used in injections, in such cases it does not decompose in the syringe, it is not irritating, and it is alkaline. The following is the formula for this alkaline *lavement*:—

Borax, ʒiv. to ʒ vi.
Sugar and water, ℥iv.

If a larger quantity of borax be administered, it is necessary to increase the quantity of fluid, since the borax is not very soluble. M. Bouchut

has used this salt in other intestinal maladies, as ulceration, but his cases are not sufficiently numerous to be conclusive.—*Dublin Hospital Gazette, Feb.* 1, 1855, *p.* 12.

URINARY ORGANS.

39.—ON THE CURATIVE TREATMENT OF CHRONIC MORBUS BRIGHTII.

By Dr. Handfield Jones, F.R.S.

[This is a paper which was read before the Harveian Society. The author first notices the disadvantages the physician has to contend with in tedious cases of this kind, which are not present in an attack which immediately threatens life. The patient may not be aware of the danger, will scarcely believe the prophetical warnings of his physician, and, in consequence, may not be so persevering in the use of remedies as is necessary. The highest medical qualities are required in these cases, the clear intellectual ken to fix on the true cause, the decided judgment to adhere to a proposed plan, and the confidence amid all discouragements to keep the desired result in view. Dr. Jones then says,]

It is quite unnecessary that I should enter into any detail respecting the structure of the healthy kidney. I would only refer to these points:—1. That the Malpig. tuft of capillaries lies bare and unsupported in its capsule communicating with the tubes. 2. That the tubes of the cortical structure have a distinct central canal, with a lining of glandular epithelium resting on homogeneous membrane. 3. That this glandular epithelium is an albuminoid substance, and has never been shown to contain any of the constituents of the urine, though it is doubtless intimately concerned in the secretory process. 4. That urea and uric acid are proved to be formed in the blood and eliminated by the kidney. 5. That the epithelium constitutes the main mass of the kidney.

With regard to the pathology of Bright's disease, I am anxious to say at once that I exclude totally and entirely from this appellation all instances in which acute congestion or active hyperæmia befals a healthy kidney. I do not consider the state of the kidney in dropsy following scarlatina, or in that resulting from arrested perspiration as having any essential connexion with that which exists in true M. Brightii. I believe the two conditions to be as distinct from each other as pneumonia and phthisis. I trust, therefore, that no one will suppose that I use albuminuria and Bright's disease as convertible terms. Albuminous urine is a sign of Bright's disease, but no pathognomonic one, nor absolutely a constant accompaniment. It will be quite sufficient for my present purpose if I take for our consideration the two principal varieties of morbid change that are met with in

M. Brightii. The one is the large, pale, often mottled kidney, not usually presenting much appearance of granulation. The other is the small, contracted, wasted, granular organ, lobulated often like that of a fœtus. Enlargement sometimes to double or treble the natural size is the characteristic of one, atrophy and diminution of the other. What we gather from naked-eye inspection the microscope confirms, and converts into more precise information. If we examine a specimen of the large kidney, we find the epithelium in many parts accumulated in considerable quantity, both distending the tube, and more or less obstructing its canal. The individual particles may be larger and more completely formed than usual, or they may be stunted and ill developed. Not unfrequently a large quantity of oil is mingled with the granular matter, and this may be present in the cells to such an extent as to give them completely the appearance of glomeruli, or compound inflammation-globules, as they were originally, but wrongly, denominated. The existence of much oily matter in the diseased tissue, gives it a more or less decided milky appearance, which, contrasting with pale spots where there is less oily matter, or red where some blood congestion has taken place, produces the mottled condition. Fibrinous casts, themselves often undergoing fatty change, in most instances are present in some of the tubes, increasing the obstruction and distension. The Malpighian tufts may not appear notably altered, or may be obscured by some effused and coagulated fibrine, or may be compressed into a small mass at the bottom of their capsules by the refluent fluid from the obstructed tubes. Sometimes more destructive changes take place, and the tubes are found more or less broken up, and converted into a detritus of oily and granular matter. The urine secreted by kidneys to which the foregoing description applies, is generally rather pale, somewhat turbid, highly albuminous, of low specific gravity, and deposits a sediment, often pretty copious, consisting of casts of the tubes, renal and vesical epithelium, with occasionally blood-globules. It contains far less of the solid constituents of the secretion than the normal fluid.

In the atrophied kidney, the wasting and destruction of the tubes is usually more considerable than in the enlarged. In extreme cases very little trace of them may be discernible, but in less advanced, *i.e.*, one may say in the majority, the tubes are found obstructed by unhealthy, more or less fatty, epithelial contents, together with casts, and yellow pigmentary molecules, the traces of hemorrhagic extravasation. The Malpighian tufts, in consequence of the general collapse, appear closer together ; a varying number of them remain healthy, others are compressed and shrunken. Cysts may exist in vast numbers in diseased kidneys, usually, I think, in those that are wasted and granular, but they do not belong essentially to the disease. They seem to be produced partly from the tubes themselves, by obstruction of their canal, and subsequent dilatation, partly (and this especially applies to the case of a multitudinous growth of microscopic cystlets)

by the formation of new vesicles. Their contents are never identical with the proper renal product, but consist of various cell-formations, and colloid, albuminous matter. The urine secreted by atrophied kidneys is usually more abundant, paler, less albuminous, of lower specific gravity, and deposits a less quantity of epithelial sediment than that from enlarged kidneys. It usually contains fibrinous casts, and sometimes, if any amount of congestion has been set up, blood-globules also.

Two conclusions, of the utmost importance to us in practice, seem to me fairly derivable from the knowledge we have gained respecting Bright's disease. The first is, that the morbid condition, whether attended with hypertrophy or atrophy, is of the nature essentially of depraved unhealthy nutrition, not in any wise the result of ordinary inflammation attacking a previously healthy structure. In the atrophied kidney, I see a change just such as befalls any part that, from defect of its own vital energy, gradually decays. I have found recently just the same occurring in the pancreas. The enlarged kidney is, I am sure, frequently associated with scrofulous disease in other parts. I have seen it co-existing with tubercles and vomicæ in the lungs, and deposit of bacony matter in the spleen, of a patient who died with tertiary syphilis. The enlargement of the kidney seems to take place much in the same way as the enlargement of a gland (lymphatic, which becomes the seat of scrofulous deposit. In both cases, unhealthy plasma is organized into low celloid forms, and in much the same relation to adjacent structures. The conclusion above stated is strongly supported by the latent, insidious manner in which Bright's disease usually comes on, by the efficient causes, and by the juvantia. To the former, as essentially of debilitating character, I have only space just to allude. When hyperæmia or inflammation actually makes its appearance, other symptoms are observed (especially in the urine) than those which occur in the degenerative state alone.

The other conclusion is that, in a great majority of cases, in which the symptoms announce degeneration of the kidney, it may reasonably be anticipated that a considerable part of the organ remains in a state which is capable of restoration more or less complete. As long as the tubes are undestroyed, we may have hopes of being able to reproduce a healthy condition of their epithelial lining; if they have perished, the attempt must be ineffectual, but at any rate can scarcely be in any case injurious. We shall, therefore, do wisely to act on the most favourable supposition, and employ all our efforts to prevent the degeneration advancing further, to repair as far as possible the damage that has been effected. The question is, how shall this be done? and to this, of course, experience alone can give a satisfactory answer. The chief purpose of my communication is to lay before the Society such indications as I have obtained of the course to be pursued, and of the means found useful in pursuing it. Strongly convinced as I am that Bright's disease is not inflammatory, in any cor-

rect use of the word, but is purely a disease of depraved nutrition, I can entertain no doubt that the right method of treating it is to endeavour to improve the general vigour and power of the system, and therewith its nutrition, in every possible way. We must not be satisfied with the removal of the dropsy, and restoration to apparent safety; but we must go on in the task of corroborating the system, till the urine has recovered its healthy condition, and the blood again imparts a ruddy hue to the complexion, and the muscles are toned to strength and vigour. I do not say that we shall always, or often, be able to do all this completely, but this is what we should perseveringly aim at; and I think we have good ground for believing that such persevering effort may make all the difference to many of our patients, between an early death and many years of tolerable comfort and enjoyment. I have seen a patient this very day who has M. Brightii in a marked form, with its perilous complications of dropsy, bronchitis, and threatening cerebral symptoms. His history is that he had small-pox at an early age, and has never been well since. How different might his condition now have been, had the renal degeneration, which no doubt dated from the debility induced by the small-pox, been observed and combated many years ago.

Case 1.—George B., aged 26, married, a smith; admitted Sept. 1. He had ulcerated sore-throat fourteen days ago. Has had two attacks previously, exactly of the same kind, and has not been exposed to the contagion of scarlatina, nor has he since then observed any desquamation of the skin. He has dropsy of the legs, and pain in the lower limbs; his food digests badly; tongue whitish; skin cool; pulse quick; is rather spare, and of sallow aspect; urine is acid, of good amber colour, deposits a mucous cloud, consisting of pale, often corpuscular casts, not of large size, with blood globules and mucous corpuscles, or abortive nuclei, and some larger epithelial particles; it is markedly albuminous.

Acid. nitrici ℥iij., tinct. cinchon. ʒj., infus. gent. co. ʒj. Ter die. Tr. ferri muriatis ℥x., aquæ ʒj. Ter die c. cibo.

12th.—Feels a great deal better indeed, swelling of legs all gone, feels almost as well as ever he did. 19th.—Feels a great deal stronger and better. 29th.—Feels quite well. Pt. in tr. ferri mur. Oct. 17th.—No return of dropsy, feels as well as ever he was, is as able to do work as well as ever he could. Rather anæmic. Urine clear, bright, rather pale colour; not albuminous. Oct. 27th.—Urine clear, of deep amber colour, sp. gr. 1027; contains a trace of vesical and possibly of renal epithelium; no albumen; one doubtful cast. June 5th.—Is now recovering from another attack of sore-throat; urine clear, of healthy aspect, not albuminous. No evacuant treatment was employed in this case; the dropsy disappeared under the tonics. The urine became quite healthy, and remained so. It is probable that degeneration was not far advanced. There was nothing to indicate that the case was one of mere renal congestion.

Case 2.—Thomas Poston, aged 27, waiter, admitted Sept. 29th.—Is short and stout. He stated that he had had rheumatism, and fourteen days ago sore throat. His illness seems to have come on gradually, but my notes do not speak positively on this point. He complained of a kind of pain at the lower sternal region, with some dry cough. The tongue was clean. His food digested well. The heart's sounds were brief and clear, the impulse rather weak. His bowels were regular. He was anæmic, his feet swelled at night, he felt weak in himself; he acknowledged that he was in the habit of drinking to excess. The urine was rather cloudy, most highly albuminous, deposited whitish flocculi, consisting of small casts, granular, pigmentary, and corpuscular, together with multitudes of small (probably renal) epithelial particles and blood globules, mingled with many uric acid crystals. The sp. gr. was 1015. I put him on tr. ferri muriatis ℥vij., acidi muriat. ℥ij., inf. quassiæ ℥i., ter die, with a large plaster to the loins. Oct. 13th.—He reported that he was a good deal better, he had very little swelling of the feet at night, his eyelids were not swollen in the morning. Tongue clean. Urine was not quite clear, strongly acid, deposited flocculi, consisting of granular casts, ill-defined corpuscles, and granulous matter, with torulæ; sp. gr. 1010; it was decidedly but slightly albuminous. Oct. 24th.—He reports there is nothing now the matter, has no dropsy, is getting quite strong. Nov. 7th.—He had no return of dropsy, felt quite well. The urine contained a mere trace of albumen, was of good though rather pale colour, deposited a slight sediment consisting of a little urates, with short fragments of granular casts, some very long homogeneous ones, and a few corpuscles, sp. gr. 1016. He continued under treatment till Dec. 29th, when he remained perfectly well. On Dec. 12th the urine gave no deposit with heat or nitric acid, was almost quite clear, without sediment; it contained some cells looking like altered scaly epithelium, no unequivocal casts. This case was very much like the preceding, and occurred about the same time. I regard it as a case of degeneration of the kidney in an early stage, which was arrested by appropriate treatment. It was very interesting to observe how gradually the urine recovered its healthy condition. The dropsy was the first symptom to disappear.—*Med. Times and Gazette, May* 19, 1855, *p.* 488.

40.—ON THE IODIDE OF POTASSIUM IN DROPSY, WITH BRIGHT'S DISEASE OF THE KIDNEY.

By Dr. Corrigan, Physician in Ordinary to the Queen in Ireland.

I believe that in many cases the exhibition of iodide of potassium will remove, steadily and certainly, the dropsy that accompanies albuminuria, and will very much improve the quality of the urine, so that it will be found, in the treatment of cases of Bright's diseases, one of

our most valuable medicines. What may be the extent of its action upon the structural change going on in the kidney, I would not at present venture to pronounce a positive opinion; but judging from its effect upon the urine, and from analogy as to its power in arresting, and even removing, interstitial depositions in other organs, I think it would not be rash to infer that it has the power, not only of arresting, but to a great extent removing, the peculiar interstitial deposition that is found in the kidney in some forms of Bright's kidney. I have already brought forward cases in support of a view that I have long advocated, that there are two essentially distinct diseases of the kidney, designated as Bright's disease, and described as only differing in being two stages of the one disease—the first stage being described as enlargement, the second as contraction. That the kidney, like the liver, may at first enlarge, or be hypertrophied, and that it may afterwards contract, I would not venture to deny; but this is quite different from its being laid down, as it generally is, that the contraction is in every case the second stage of the enlargement, and that to this contraction the first stage, or that of enlargement, must progress. It is to this I would object, and not to occupy too much time in pathology, in a lecture devoted principally to treatment, I would at once say, that I believe the two diseased states of the kidney, of which there are illustrations before us, have no necessary connexion with one another.

The first is a kidney much enlarged in size, pale yellow in its substance and on its surface, smooth and brittle in its texture, and with its capsule loosely attached and readily peeling off, attaining its size and deriving its appearance from the interstitial deposition, as far as we know, of a mixture of fat and morbid fibrine.

The second is that form of pathological alteration that I would designate as cirrhosis, in which the organ, from the contracted action set up in its cellular matrix, goes on diminishing in size until at last its vascular and secretory tubes are contracted so as to be completely choked up. It is not probable that in the latter form of disease we can effect much by treatment; but reasoning from analogy, there seems no good reason that we should not be able in cases of the former to remove again and again the consequent dropsy, and even to arrest and also to effect the absorption of the interstitial deposition which constitutes the morbid change in the kidney. I have said from analogy, for we know that in instances of the corresponding interstitial deposition of pale yellow fibrine and oil in the liver, constituting this large yellow liver, it is possible not only to remove repeatedly the consequent dropsy, but even to reduce the liver to its healthy size, where the enlargement had been very considerable. The dropsy, in most cases of enlarged liver, is not so much dependent upon any mechanical obstruction, as upon extended irritation, just as we see effusion into the tunica vaginalis the result of low testitis; hence it is that we are able to remove so effectually the dropsy attendant on

the large yellow liver, and that this is the nature of the dropsy accompanying this state of the liver is further proved by the fact, that the enlarged yellow liver will continue for many years without any diminution of its size; but nevertheless, without any return of the dropsy. It was a consideration of this analogy of the large yellow kidney being, like a similar change in the liver, a peculiar pathological state, and not merely the first of the stage of the one disease, and of the dropsy not being dependent, as in cirrhosis of the liver and kidney, upon gradually accumulating contraction, that led me to employ iodide of potassium in its treatment. We all know the very active power of this agent in acting upon the function of secretion in removing the interstitial depositions in periostitis and effusion into joints, and I was led to hope it might, from those qualities, be found useful in one form of Bright's disease. In the first case in which I ever employed it, there was not only the usual dropsy and anæmic condition dependent upon Bright's disease, but the periosteum of the tibia had become thickened, and effusion took place into the knee joints. It was mainly for this latter affection I first prescribed it, and its good effect was remarkable not only upon the joints and periosteum, but upon the general anasarca. That the iodide of potassium would not only cure for the time being, but would prevent a relapse of the disease, would be too much to say of any medicine. It does not diminish our trust in mercury, that secondary symptoms will return even after the system has been apparently fully saturated with the antidote. It will, I hope, be sufficient to recommend iodide of potassium to notice, as a remedy for albuminuria and its consequent dropsy, to say that in some cases it seems to effect a cure, and that in many cases it will be found to remove again and again the secondary dropsy. I have already observed, that it was not mere empiricism, but reflection upon the power of iodide of potassium over the function of secretion and absorption that led me to its employment. The above observations, it is scarcely necessary to say, have reference to the treatment of the disease only in its sub-acute or chronic form.

I shall now relate some of the cases noted by Mr. Currin, Clinical Clerk.

Case 1.—Francis J. Helley, formerly a soldier, æt. 38 years, admitted into No. 2 Ward, Whitworth Hospital, August 28th, 1854.

On admission he presented a very anæmic appearance, his lower extremities and entire body enormously œdematous, and there was considerable effusion into the peritoneum; the scrotum also was very much distended, almost to bursting; the surface of the body was dry, the upper extremities were emaciated and free from anasarca.

He complained of dyspnœa, great debility, increased action of the heart, and a liability to catch cold on the slightest exposure; he suffered also from constant dull pains in the lumbar regions, which extended down into the testicles and groin. At the period of his admission the appetite was good; he was, however, occasionally

subject to nausea and slight retching in the mornings. He complained much that he never of late enjoyed natural refreshing sleep; it has been uncertain and disturbed by dreams. He was inclined to be very drowsy and stupid; the bowels were constipated, and required a very brisk purge to give a free motion. Pulse small and weak, eighty per minute. He passed about two and a-half pints of pale-coloured urine per day, which, when shaken, frothed up like beer. On testing it with heat and nitric acid, it was found to be very albuminous, fully a third of the fluid tested being converted into a mass of albumen; its sp. gr. was 1.010.

He states that, up to the period of his illness, he had led an intemperate life, had served several years in India, and had been exposed to great hardships there. He was attacked in April, 1852, at Rangoon, with dysentery, from which he slowly recovered; after this he was subject to repeated attacks of diarrhœa up to the month of January, 1853, when, for the first time, he perceived his feet and ankles to swell. About this time his urine was diminished in quantity, of a blood red colour, and he experienced a frequency and some pain in voiding it; since then the swelling has slowly advanced, extending up the legs and thighs, and finally reaching the abdomen, which latter became greatly distended. His general health became impaired, and he was dismissed from the service. From the first appearance of the anasarca up to the time of his admission, he has never been free from it; it has gradually progressed until it has arrived at its present state, the legs and thighs being now nearly twice their natural size, and presenting a white, glistening appearance.

From the time he became ill up to the present, he has been under various modes of treatment.

Treatment.—August 29th.—Ordered potassæ sup. tart. ℥ss., statim sumend.

August 30th.—Repetatur pulvis.

August 31st.—He states, that he has derived much benefit from the powders; they not only gave him free stools, but also acted as a diuretic. Repetatur pulvis.

September 3rd.—Bowels constipated to-day, and he is suffering a good deal from flatus. Ordered: ℞. Spt. terebinthinæ, ℥ij.; Olei ricini, ℥vj. M. Ft. haustus, statim sumend.

September 4th.—Much better. Rep. pulvis supertart.

The cream of tartar was continued with good effect for a few days longer.

September 7th.—Ordered: ℞. Misturæ iodidi potassi ℥i. ter in die; 5 grs. of iodide and 5 grs. of bicarbonate of potass. Each oz. of this mixture contains a teaspoonful of confection of jalap, pro re natâ. He was also ordered, Lotionis nitratis argenti ℥ij. (gr. x. ad ℥i.) to paint with a camel-hair brush over the distended scrotum.

This treatment was continued for a fortnight, when the swelling was found much reduced; the scrotum had contracted to its natural dimensions.

September 22nd.—His general health much improved; urine still very albuminous, sp. gr. 1·012. He was allowed generous diet, mutton chop for dinner, &c. The same treatment to be continued, only that 3 grs. additional of iodide of potassium were ordered to each ounce of the mixture.

He continued taking the iodide regularly, and the confection of jalap every night, or when necessary, up to the 10th October, when the anasarca was found to have almost disappeared, with the exception of a slight pitting about the ankles; the ascites has entirely disappeared; he now rests well; he does not suffer much from the lumbar pains, nor from dyspeptic symptoms; he says he is quite well and wishes to be allowed to get up. Ordered to continue the iodide, and to have a tepid bath twice per week.

[October 12th.—He was much improved, stronger, anasarca very slight, and the albumen was scarcely perceptible in the urine.

October 31st.—No appearance of any anasarca, urine free from albumen, looks very much improved, and was discharged cured.]—*Dub. Hosp. Gazette, Jan.* 15, 1855, *p.* 371.

41.—*Diuretics in Renal Dropsy.*—A few days ago, Dr. Burrows, at the bedside of a patient who was recovering from a very severe renal dropsy, made the following remarks:—"I wish, gentlemen, that you should notice the treatment which has been here pursued. I well recollect that long ago it used to be Dr. Latham's observation that this form of dropsy was often very efficiently treated by the tartrate of potash. That salt was indeed his favourite remedy. Then came the addition to our pathological knowledge, and the announcement of the fact that the disease was essentially one of renal disorganization. From this it was thought to follow clearly that whatever stimulated or irritated the kidney must do harm. Diuretics consequently fell into almost universal disuse. Latterly, however, some of us are again coming back to the old practice; we find that no other remedies effect so much for the relief of the patient as diuretics, and we therefore prescribe the latter. The matter is one of experience, and my own is to the effect that the kidneys, though in a state of chronic disease, obey diuretics well, and that no inconveniences are produced." The prescription which the patient in this case had been taking was as follows:—℞. Potassæ tartrat. ℥ss., spirit. æther. nitr. ℥ss., aquæ piment. ℥j. Ft. haust. ter die. The case was, of course, one of chronic dropsy, and the diagnosis as to its renal cause had depended upon the absence of cardiac disease, and the presence of a large quantity of albumen in the urine.—*Med. Times and Gazette, July* 7, 1855, *p.* 8.

42.—*On Asparagus as a Diuretic.* By Dr. S. J. Jeaffreson, Leamington.—Take of dried tops of asparagus, five ounces; proof spirit, two pints. Take of fresh tops of asparagus five pounds. Bruise and press out the juice; evaporate at a low temperature till reduced to one pint, and strain. Lastly, add a pint of rectified spirit. Mr. Baly, chemist, of Warwick, can furnish any person desirous of trying the tincture with a limited supply, and will be happy to make any quantity that may be ordered of him.

The peculiar odour communicated by this substance to the urine, in a remarkably short time, is perhaps as familiar to the laity as the profession. It was this fact that first led me to think that asparagus might constitute a valuable adjunct to our list of diuretics; if not indeed by virtue of any specific diuretic quality it possessed, at least by its power of directing other agents of acknowledged diuretic power to the kidneys.

On referring to such authorities as fell in my way, I found that, whilst some mentioned asparagus as a diuretic in general terms, without any specific reference to its medicinal administration, others omitted entirely to notice this plant, and some others denied its diuretic properties entirely. It appeared to me evident that any deductions drawn on this subject had been founded entirely on its effects as an article of food, and not upon any direct experiments of its medicinal administration. The fallacy and uselessness of such deductions is sufficiently apparent; upon generalisations so vague, we might have discarded numerous of our best remedies as deleterious, innocuous, or useless.

Suffice it to say that, after some sixteen years' experience, I have found the tincture of asparagus a useful adjunct to our diuretic remedies. In many cases, I have found it possessing direct diuretic properties when taken alone in water; but, in still more instances, I have found it most useful in promoting the diuretic properties of other drugs, as I conceive, by directing them at once to the kidneys. I have repeatedly in my own practice, as also in consultation, simply added from half a drachm to two drachms of tincture of asparagus to each dose of an unsuccessful diuretic, and found that copious diuresis was the result.

Mr. Baly informs me that the exact loss by weight in drying the plant is eleven parts out of twelve; in other words, that twelve parts by weight of the fresh shoots are only equal to one part of dried. I have not tried the infusion of the dry shoots, but should think them worthy of trial.

The tincture of asparagus presents the advantage of being capable of combination, so far as I know by experience, with every diuretic substance in use, be it from the animal, the vegetable, or the mineral kingdom.—*Assoc. Med. Journal, May* 11, 1855, *p.* 439.

SURGERY.

AFFECTIONS OF BONES, JOINTS, &c.

43.—AMPUTATION AT THE HIP-JOINT.

By Thomas Tatum, Esq., Surgeon to St. George's Hospital.

[This case of a young man, aged 17, at St. George's Hospital, with encephaloid of the femur, has given rise to much consultation and speculation as to the propriety of so dangerous an operation as amputation at the hip-joint. Opinons seem about equally divided in the surgical world.]

Encephaloid is perhaps the most frequent form of cancer found in the long bones, the epiphyses more especially, as in this case, being the parts first seized. Mr. Syme has given it as his opinion that resection of the head of the femur has never saved a single individual. Would then the equally formidable operation of amputation at the hip be followed in this case with any benefit? It has been stated, however, on the authority of two of the most experienced London hospital surgeons, that amputation for encephaloid disease had extended the life of one patient twelve, and another eighteen years. In the present case the tumour had been growing since Christmas. The young man said he had first injured the limb by striking it with a stick; but on examination of the limb after removal, the disease was pronounced by the surgeons of the hospital to be well-marked encephaloid.

When we come to statistics, the finger-posts, so to speak, in the road to such inquiries, we find the figures point to the hopeful side. Of 20 old cases of amputation of the hip given by Chelius, 6 are said to have recovered. This result in itself appears very little; but it will be remembered that in 20 cases of all amputations of surgery put together only 15 are found to recover—cases all taken at least from the same field of hospital inquiry. Since the last century, however, and more especially since the introduction of chloroform, cases of recoveries in amputation at the hip are more frequent. The chances of recovery may now be considered exactly equal to the chances in cases where the operation does not succeed, being as 42 to 56. In 98 cases of hip-joint amputation collected by Dr. Smith, of the United States, of 30 of those amputated for injury, 18 died, and 12 recovered; whilst

in 32 cases in which it was performed for chronic disease, as in the present instance, 16 died, and 16 recovered.

If we have not succeeded of late years, as observed by Mr. Tatum, in preventing such diseases as encephaloid, if six recoveries in twenty cases hold out but slender hopes of benefit, yet we have improved the mode of operation. Many of the older cases of deaths in hospitals may be fairly ascribed to the imperfect modes of operation then in vogue, and to the surgeon interfering when too late with malignant disease. Chloroform, too, has worked a signal change in this point, even the present terrible operation having lost most of its usual horrors. Surgeons accordingly operate earlier, and the result is better; if there be any truth in the maxim, "*veniente occurite morbo*," it belongs in a very peculiar manner to chloroform and cases such as those we are considering. Children, it is said, bear operations and amputation at the hip-joint better than adults. Professor Syme's opinion, based on a large experience, is not shared by the majority of modern surgeons, especially in France, where it is believed that by removing the diseased head of the femur in old cases of hip disease (morbus coxæ), and applying the actual or galvanic cautery or other stimulants to the cotyloid cavity, thus preventing pus accumulating, and dead bone acting as a foreign body, a very great deal of good is effected, and much suffering avoided.

In 19 cases of hip-joint *excision* we find 11 recoveries; 10 are given by Sedillot, 3 by Fergusson, and 12 at the Medical Society of London. Professor Syme's opinion may yet be true, that the patients recovered notwithstanding or in spite of the operation. Such cases may be, however, very fairly compared to amputations, and such statistics in the present case at St. George's Hospital, together with the later statistics of amputation as given more especially by Mr. Sands Cox, led to a decision in favour of amputation at the hip. Of the several modes of operating recommended by surgeons for amputation at the hip-joint, as explained to his class at St. George's by M. Tatum, that by a large anterior flap, as recommended by the Paris surgeons, is now considered the best.

Mr. Abernethy was one of the first at St. Bartholomew's Hospital to improve the old method of tying the artery first, and then disarticulating. Mr. Abernethy's plan was to press the artery against the os pubis, and thus control the hemorrhage. Mr. Syme suggested it also very early, and was followed by Mr. Liston, who recommend d cutting downwards, keeping close to the bone, so as not to injure the artery, till the end of the operation, when the knife was carried outwards, and the assistant grasped the flap and vessel. The new plan of operation of Sir Astley Cooper was given originally in 'The Lancet,' vol. ii., 1822, p. 95, and consisted of carrying the knife in an elliptical curve, beginning just below Poupart's ligament, a little to the outside of the artery, the incision carried downwards and outwards to the back of the thigh, the artery then tied, and the bone disarticulated.

The "circular" method of Græfe, as well as this operation, are not used now. The plan also by two lateral flaps has fallen into disuse; the external flap is too thin, and unites badly to the internal parts. The method by one internal flap is better, and seems adapted to cases where the patient is very much emaciated, but otherwise this flap, in hospital practice, is found to be too large and too heavy, and not easily kept in apposition.

All these operations, in a word, have now yielded to the later experiences of chloroform, and the single anterior flap. The chief advantages of this method are the following:—First, that, as in the case of Mr. Erichsen just cited, or in Mr. Charles Guthrie's patient, the artery is grasped by the assistant with the flap even before the vessel is divided; the operation is quickly done; the flap when cut anteriorly falls by its own weight into its place; purulent collections escape more readily; and, lastly, the wound consists of one continuous surface, not, as in other operations, the apposition of incongruous parts, like the external and internal muscles dragging different ways. The chief danger to be apprehended in amputation of the hip is excessive hemorrhage, the incision being so high up that no tourniquet can be applied, and no pressure of the artery at the groin trusted to. Some even of our oldest surgeons—amongst whom we may mention Mr. Lawrence and Mr. Stanley—never saw the operation before the present opportunity; we are, therefore, the more particular in describing it. The large anterior flap is formed by transfixion, the patient's body being brought well forwards on the edge of the table, so that the nates project, while the sound limb is secured by an assistant. The knife must be fourteen or sixteen inches long, and enter on the left side, two fingers' breadth below the anterior superior spine of the ilium, and carried deeply in the limb behind the vessels, and across the joint, its point issuing immediately above the tuberosity of the ischium. The limb, which during this stage of the operation was slightly flexed on the abdomen, was now forcibly abducted and everted when Mr. Tatum opened the capsule, the head of the femur at this point, if it be pushed up, starts out at the acetabulum; the remainder of the capsule is then cut, and the posterior flap made by carrying the knife downwards and backwards. If the operation is performed on the right side, the anterior flap is of course formed by the insertion of the knife in a reverse direction above the tuberosity of the ischium. A good deal depends on the assistant, as we have said, slipping his finger under the anterior flap as it is being formed, and compressing the femoral. No blood was lost from the artery.

The operation in this case was performed on the 5th of the present month (July). The after treatment has not presented any peculiarity. The patient has had wine, beef tea, and opiates; and, except that he feels the "twitches of his toes," as he calls it—of a limb that has been in the museum three weeks—the poor fellow seems to be quite well.—*Lancet, July* 28, 1855, *p.* 77.

44.—SUCCESSFUL EXCISION OF THE KNEE-JOINT.

By Oliver Pemberton, Esq., Surgeon to the General Hospital, Birmingham.

[Edwin Fowl, aged 12, a pale, strumous looking boy, was admitted into the General Hospital, December 20th, 1853, for disease of the left knee, of fourteen months' duration. The leg formed a right angle with the thigh, the circumference of the joint was three inches and a half more than that of the opposite one. The integuments were shining and painful. His sufferings were very great, especially at night: several apertures of sinuses communicated with carious bone. By rest and good diet he improved for a short time, but hectic and diarrhœa set in, so as to necessitate an operation. Accordingly, on the 8th of February, 1854, it was determined to excise the joint.]

An incision was carried from a little above the outer to a little above the inner condyle, across the front of the joint, below the patella, dividing its ligament of insertion down to the spine of the tibia. The flap thus formed was turned back; and the cavity of the joint was fairly exposed. The disorganized soft parts having been cleared away from over the femur, it was sawn through above the condyles, without the aid of a spatula, or the introduction of a knife: the same process was next applied to the head of the tibia; and the articular extremities were then removed in their connected state, by a cautious dissection of the soft parts beneath, commencing from above downwards. The hemorrhage was inconsiderable; no ligature was required. The amount of bone removed measured rather more than three inches and a half. About two inches and a half belonged to the femur; and about an inch to the tibia. The patella was left, its under surface being scraped. The head of the fibula was not interfered with. The operation being finished, the leg was readily brought into a line with the thigh. The flap containing the patella was simply laid, in as accurate a state of apposition as possible, over the parts beneath, without the aid of sutures, and was covered with water dressing. The entire limb was then adjusted on a straight splint, reaching from the buttock to the ankle, furnished with a foot support, and with side pieces to the thigh and leg; the knee being left perfectly free on the sides and above, for the application and renewal of dressings.

Examination of the Diseased Parts.—The synovial membrane was everywhere affected by disease. It presented a pulpy, thickened condition, and was of a brownish tint, and covered in places by bloody discolorations. The cartilage covering the tibial surface of the outer condyle was destroyed, as was also the corresponding surface of the semilunar cartilage of the tibia. The entire thickness of cartilage on the inner condyle and tibia was not altogether destroyed, but was in process of ulceration. The extremity of the femur above the condyles was blackened, and denuded of periosteum. The bone was soft and

carious. Fresh osseous material had been thrown out behind the condyle and on the head of the tibia. The medullary canal of the bone did not present an unhealthy appearance.

No shock followed the operation; and but a single restless night marked the presence of any constitutional disturbance. The warmth of the limb, below the seat of operation, never varied. The patient had scarcely any pain, and could in the course of a fortnight exercise complete command over the muscles of the foot and leg.

Three months afterwards, the following note was made.

The healing of the wound had been retarded by the thickened character of the integuments. The parts in the situation of the joint were becoming firmer and more consolidated. The boy possessed perfect control over the movements of the foot, and turned it, with the entire limb, either inwards or outwards. The splint was discontinued, and the wound was firmly strapped and rolled.

Four months after the operation, the wound remained open slightly at the sides. A gutta percha splint was applied behind the joint; and the boy was directed to be out of doors on crutches. An accurate measurement was made of the two limbs, when it was found that the difference between them exactly corresponded to the amount of bone removed—namely, three inches and a half.

The patient remained in the hospital until October; more for the purpose of observation, than from any necessity. When discharged, eight months subsequently to the operation, the wound had entirely healed. One of the sinuses, existing previously to the operation, over the patella, still discharged. He could walk with the aid of a stick and a high-heeled shoe; the knee being supported by a leather case.

I saw the boy so recently as the 23rd of last month (April). The limb was quite straight. The wound was sound. The union appeared to be ligamentous. He could walk about anywhere with his leather case and stick.

Remarks. The foregoing case I had the honour to bring under the notice of the Birmingham and Midland Counties Branch of the Provincial Medical and Surgical Association, at the meeting held on the 3rd of May. It was accompanied by a series of observations, in reference specially to the operation of excision of the knee; but as those observations were arranged mainly with the view of placing before my audience the present state of our experience on the question, in order to elicit discussion, and as I am preparing a memoir upon the subject of the operation in all its bearings, I have contented myself, on the present occasion, with simply placing on record the case, together with a few comments on its more prominent features.

Assuredly, one of the most remarkable circumstances connected with the operation, is the entire absence of shock. There were never present any symptoms of such a condition. I believe most fully that the constitutional disturbance was diminished by the extirpation of the

diseased parts; as the hectic and diarrhœa, markedly present before the operation, ceased on its performance. With regard to hemorrhage, the articular vessels, on being divided, spurted out for a moment, but did not require ligature. No venous oozing occurred. I was particularly struck by the continuance of the warmth in the limb, the temperature of which never varied. A slight amount of pain was experienced; much less, indeed, than what we should expect to find present in so large a wound, involving, as it did, the extremities of bones, rendered free to move on raw and tender surfaces. Yet, there was no starting of these extremities; there was no painful throbbing and quivering in their vicinity. The movements of the toes, and the command generally of the foot and leg, appeared to be scarcely interfered with. Within a few weeks, the patient could move the foot inwards or outwards with ease, or maintain it in the upright position. The suppuration was never profuse; never so great as that which would arise from a flap amputation of a thigh of the same dimensions as the patient's. The granulations of the wound wanted tone, it is true; but that would be an inevitable condition of a large wound, involving thickened integument, and existing in a strumous habit.

The mode of operation which I adopted appears to me to be deserving of attention.

Having divided the soft parts by the semilunar incision, as first adopted by the late Mr. R. Mackenzie, and having turned back the flap containing the patella, so as fairly to expose the interior of the joint, I applied the saw to the femur and tibia, and divided the required amount from their ends by a careful use of the instrument; the soft parts being undisturbed by the needless introduction of a spatula. The separated extremity of the femur was then raised, and, together with the tibia, was removed by a dissection from above downwards; such ligamentous attachments as were left undestroyed by the ravages of the disease still being permitted to connect the two bones. By adopting this method, the time occupied in the operation was considerably shortened; but what was still more important, by thus keeping the connexion of the articular extremities unbroken, their dissection from the popliteal vessels was rendered safer and easier. By this process, the operator can have the upper soft parts depressed by an assistant where the contiguity of the vessels is of comparative unimportance, whilst he is enabled himself to raise the back part of the joint from the more perilous vicinity of the vessels inferiorly, so as to complete the undertaking in safety.

Mülder, in the Hospital of Gröningen, first insisted upon this; though I am not aware that his valuable suggestion has been carried out by any one save myself.

Wachter, in his 'Dissertatio Chirurgica de Articulis Extirpandis,' observes:—"The illustrious Mülder did not deem it necessary to remove the ends of the bones separately, as Park did. Hence no inconvenience arose; and the ends of the bones were able to be extirpated

admirably. These being taken away, nowhere, not in the deepest part of the wound, was the popliteal artery uncovered; consequently, there was little fear during the operation lest it should be wounded."

In the preceding description of the plan I adopted, I say that the soft parts were undisturbed by the needless introduction of a spatula. Now, so far as I am aware, this is the first instance in which the articular extremities have been so divided. Hitherto, a broad spatula has been introduced; and upon its protecting surface the bones have been sawn through. The advantage derived from the operation I recommend—namely, that of avoiding disturbance of the soft tissues—is so obvious, that I am surprised it has escaped observation.

Mr. Butcher, in his recent essay on excision of the knee, minutely describes a particular saw, with which he removes separately the protruded bones, cutting them from behind forwards, away from the vessels. Not, however, admitting the danger of sawing down to the soft parts, I cannot, in my own judgment, admit the advantage of this instrument in the operation in question, as described by this able surgeon.—*Assoc. Med. Journal, May* 18, 1855, *p.* 463.

45.—DISEASED TARSUS; "PEREGOFF'S OPERATION."

By John Simon, Esq., F.R.S., &c.

[This is a new kind of operation, lately brought into notice by Mr. Syme, as tried in St. Petersburgh, and of very great interest and importance.]

It is curious what a multitude of surgical experiments have been tried on the ankle-joint and foot. It was only in the year 1814 that M. Roux, in a tour through English hospitals, first showed our elder surgeons what was then well known on the continent as "Chopart's operation." Since then we have adopted it as well as Syme's; we have also had the operation of Mr. Wakley, and the one performed by Mr. Teale, of Leeds. To these is now added "Peregoff's operation," a very obvious improvement in those cases adapted to it. We need scarcely say that where the calcaneum and astragalus are not diseased, Chopart's is best; if these two bones are very much diseased, then Syme's operation; if the calcaneum be sound, then Peregoff's. It is objected against the last-named operation, that this bone is very liable to caries, and it is not desirable that any of it should be left. It has been stated that the operation is more difficult than the more familiar one of Syme; that the use of chain-saws, &c., is more tedious. Much of this is obviated by the use of the saw used by Mr. Simon, known as the "Dublin saw," with which in the present case he incised the calcaneum with the greatest ease and quickness, dispensing entirely with chain-saws, &c.

The young man, the subject of the operation in the present instance, stated that the disease of the bones of the foot had existed eighteen months. There was a large fungus hematodes-looking mass sprouting from the inside of the sole of the foot, the back part of this articulation being apparently healthy. The patient did not appear emaciated or much worn down by the disease; the foot and tarsus were much swollen, but not more than in ordinary cases; the foot, in other words, presented all the usual signs of very much diseased tarsus, the probe going down deep into a mass of carious bone, the red-looking mass, however, being rather congealed blood than true fungus hematodes.

The operation very evidently differs from all those already mentioned, as being not so much an amputation, as suggested by Syme and Chopart, as resection of the ankle-joint. One sees at once that, with the two bony surfaces exposed, it is a modification of the idea of resection of the knee or elbow; indeed, in the dead body, quite an admirable stump or new foot is formed; but we were not prepared, it must be confessed, for such a perfect operation as that performed by Mr. Simon—the coaptation of the sawed end of the bones and the excellent stump struck many persons present as being something very novel, but apparently more useful. With respect to the slowness with which improvements in surgery make their way, the history of Chopart's operation is sufficient evidence. "If one may not be thought unpatriotic in these bellicose times," Mr. Simon quietly observed to his class before the operation, "in having any communication with the enemy, or adopting anything from St. Petersburgh, we certainly have here a very nice and very new operation, not before performed perhaps in this kingdom. One observes the idea of advance well marked, or what one is familiar with now in surgery as conservative operations." Surgeons are very slow, no doubt, to adopt any suggestion, from the fact of its mere newness or novelty, so highly prized in medical societies, of which we have had a memorable instance in compression in aneurism; the improvement must bring its own recommendation in being an improvement.

The operation, in its earlier steps, was almost identical with that of Syme's; it appeared to us, however, to be done in half the time, as the most expert surgeon will now and then get into the hollow of the calcaneum, in disarticulating this bone; whereas Mr. Simon, in the present case, the moment he had cleared the astragalus, cut through the calcaneum quite easily and rapidly with the new saw. The man having been placed carefully under chloroform, one could observe each step of the operation, as if it were one of Mr. Fergusson's surgical operations on the dead body. The usual transverse incision was first carried across the sole of the foot, from the external malleolus to the opposite point on the inner malleolus. This incision must not be carried too far forwards, or the surgeon will have too much flap; the second incision is carried rapidly across the instep, in

the usual manner, meeting the ends of the former. The astragalus, apparently healthy, was next forcibly disarticulated, the foot forcibly held down till the lateral annular ligaments, flexor tendons, with the accompanying posterior tibial nerves, vessels, &c., were freed. We observed also that Mr. Simon cleaned the line of incision for the saw, so as not to lacerate the periosteum. The incision, as we said before, was then run rapidly through the end of the calcaneum. One very thin slice also was shaved off the ends of the tibia and fibula, removing, of course, the cartilage and malleoli, when these two freshly-cut bony surfaces seemed to come together almost as perfectly as if cut from a pattern to do so. One or two very small vessels, previously controlled by the tourniquet, were tied, the parts brought together by ligature, some adhesive straps, and one gutta percha splint also applied, and the man removed to bed. Some of the older surgeons, as Chopart, waited to tie each artery as soon as it was divided, on the instep, the anterior tibial, and in the sole of the foot, the plantar arteries, the patient writhing in pain; but this is easily obviated by a tourniquet on the thigh. If the present method should be adopted as preferable to amputation, it has the obvious advantage of leaving one limb almost as long as the other.

In cases of gun-shot wound, or gangrene of the foot from frost-bite in the army, it does not seem more tedious than other operations. The fact of leaving a limb as long, or all but as long, as the opposite limb in walking, would be a very manifest improvement over the more ordinary operation of amputation, and high-heeled shoe. It may appear to many rather singular why this very obvious operation never suggested itself before—why we should be indebted to a Russian surgeon for a plan of removing a diseased foot, that almost lay in the road of so many experimenters. We believe the secret is to be found in the more general use of chloroform in operative surgery, as we previously mentioned in reference to resection of joints. Resection was all but unknown previous to the discovery of anæsthetics. Since then, all good surgeons have familiarized their minds with the fact of resection, and adopted in practice the coaptation of newly-cut bony surfaces, as in the elbow and shoulder; the operation of Peregoff being nothing more than a further, and, as appears to us, on the whole a valuable, but, of course, still new and speculative extension of the same principle.

We have seen two cases lately where the os calcis, or part of it, was removed, at the inferior and back part of the foot, one by Mr. Hilton, at Guy's; the second by Mr. Paget, at St. Bartholomew's. It does not appear to us that this bone is particularly subject to sloughing; much will depend, of course, on the age or other condition of the patient, together with the hard brawny character of the integuments of the heel. These conditions, however, will apply, perhaps, to Syme's operation as much as Peregoff's.—*Lancet, May* 12, 1855, *p.* 484.

46.—CHRONIC INFLAMMATION OF THE KNEE-JOINT.

By William Coulson, Esq., Surgeon to St. Mary's Hospital.

[It is by no means easy to form a correct classification of this disease, for cases which present great differences, often in reality differ merely in intensity, and in the slow or rapid manner in which the disease may have passed through its different stages; on the other hand, if we were to adopt the classification of Sir B. Brodie (which perhaps is the best), and divide them according to the tissues in which the disease has originated, yet still we are exposed to error, for in many cases it is impossible to say in what tissues the inflammation has commenced. We must, therefore, be content with directing our attention to the principal features which characterize certain groups of cases, and the differences connected with the influence exercised by the constitution of the patient.]

In some healthy subjects beyond the middle period of life, the disease often commences in an acute or subacute form, and subsequently becomes chronic. It has appeared to me that these cases are more manageable than such as are chronic from the commencement. They do not present the same tendency to the development of false membranes in the joint, or to the deposit of plastic materials outside it; they do not so often terminate in suppuration or eventual destruction of the joint. There are, on the other hand, many exceptions to this, for simple chronic inflammation, with the deposit of coagulable lymph, which has no tendency to become modified, (and such I suppose to be the state in these cases,) may at any time degenerate into an inflammation of a less favourable character.

In patients afflicted with scrofula, and in those of a decidedly lymphatic temperament, the disease is attended with some peculiarities which are worthy of attention. This form of the disease has been called scrofulous inflammation of the joints; but, as M. Lebert has justly observed, it would be more correct to designate it "inflammation in scrofulous subjects," because if we expect the deposit of tubercular matter in the bones or soft tissues (and this is far from being constant), there is nothing either in the symptoms during life, or in the changes discovered after death, by which it can be distinguished from the disease, as it often occurs in persons who are entirely free from a scrofulous taint. In these, as well as in scrofulous subjects, we may find pulpy degeneration of the synovial membrane, inflammation of the spongy ends of the bones, great tumefaction of the soft parts external to the joint, and numerous abscesses; and all that we are strictly entitled to say is, that there is a greater tendency to such changes in scrofulous subjects than in others.

Inflammation of the joints in scrofulous subjects is chiefly characterized by the following circumstances:—It is extremely chronic; influenced as the disease is by the general health of the patient, it may continue for years, with alternations of improvement and relapse.

finally disappearing about the period of puberty, with the other effects of the scrofulous diathesis. It manifests a great tendency to terminate in suppuration, and in the development of cellulo-vascular, or fungous tissue in the synovial membrane, in the spongy ends of the bones, and in the soft parts around the joint. The development of this tissue in fine filamentous layers on the synovial membrane constitutes the pulpy or gelatinous degeneration of modern pathologists. When developed in the spongy tissue of the bones, it produces rarefication and softening of the areolæ, and constitutes the scrofulous disease of the joints of Sir B. Brodie. When deposited in great abundance in the soft parts external to the joint, it forms the pale-coloured round and shining tumour which our predecessors denominated "white swelling." The disease in scrofulous patients has a greater tendency to commence in the osseous tissues of the joint than in the soft parts; still it sometimes commences in other parts. Every surgeon in extensive practice must have had an opportunity of examining cases after death, in which the disease was confined to the synovial membrane; and our medical journals for the last few years, during which so much attention has been directed to the excision of joints, contain numerous instances of pulpy degeneration of the synovial membrane, without any corresponding affection of the bones, or with changes so slight as to lead to the inference that the inflammation of the synovial membrane had preceded that of the hard parts by months and years.

Another characteristic of the scrofulous form is, the insidious manner in which it often commences. This is particularly remarkable in the knee-joint. The early symptoms are, in many cases, so slight that the patient makes no complaint of pain. The disease seems to commence in some derangement of the motor power, a slight awkwardness in the gait, an almost imperceptible limp. This may go on for some weeks before any pain is felt, or, at least, before any pain is complained of. When pain does set in, it is not felt, in the first instance, during a state of rest, but is produced by exercise; gradually it appears at night, becomes more severe, and then follows the usual course. In the latter stages of the disease, certain peculiarities may also be observed connected with the scrofulous element. The suppuration is abundant. In some cases the pus contains broken-down tubercular matter. The abscesses are numerous, and may open at considerable distances from the joint. When ulcers form, they present the appearance of other scrofulous ulcers.

Chronic inflammation of the knee, as well as of other joints, may commence in the synovial membrane or in the bones. We know this to be the fact from pathological anatomy; and it seems highly probable that the form of the disease, in its early stage, will be modified according to its origin; but it must be confessed that we still want a series of carefully recorded cases to determine the exact relation which exists between symptoms and lesions. In some well-marked cases,

seen at a very early stage, and when the joint is superficial, it may be possible to say, "here the bones alone are affected, there the synovial membrane;" but every surgeon must confess that he has met with numerous cases in which it was impossible to draw this distinction either from the history of the case or the actual aspect of the diseased parts. Here is one example for you amongst many:—The patient, a man beyond the middle period of life, having always enjoyed good health, was attacked with inflammation of the knee-joint. The joint became excessively swollen and painful in a short time. Within a fortnight it was so painful as to confine the patient to bed, and was double the size of the sound joint. Abscesses soon formed in spite of treatment; the patient's health gave way, and in about two months amputation became necessary. Now, the course and history of this disease would lead us to conclude, according to received notions, that it was inflammation of the synovial membrane. But what were the post-mortem appearances. Various abscesses in the periarticular tissues, some of them communicating with the joint; ulceration of the cartilages in various places, particularly in front of the internal condyle of the femur, where the bone was denuded; small fungous growths projected from the denuded surfaces of bone. The cartilages of the tibia were loose; the spongy tissues carious, soft, and infiltrated with pus; the end of the femur was in the same state. The synovial membrane is described as having been soft and ulcerated in many parts. Now here is a case in which the symptoms indicate inflammation of the synovial membrane, while pathology reveals inflammation of the bones; and the unavoidable conclusion is, that there is something defective in our symptomatology. However this may be, it is necessary for me to point out to you the characters which, according to our best authorities, distinguish chronic inflammation of the knee-joint according to its seat—that is to say, according as it originates in the synovial membrane or in the bones.

When the disease commences in the synovial membrane, we have pain and tumefaction of the joint at an early period. The pain is severe, and increased by motion; the exacerbations of pain are more frequent and more severe; it is more generally diffused over the joint, instead of being confined to a particular spot. The swelling sets in early: it is soft at first, from effusions of fluid within the joint; it then becomes more firm, and is limited by the synovial membrane, appearing at those points where the membrane yields most readily. Hence, it first appears about the sides of the patella, or above that bone. M. Leuret observes that the surface of the affected joint feels warmer than natural; but Mr. Stanley, on the other hand, gives increased temperature as a sign of inflammation of the bones, and I am more disposed to adopt his opinion. The progress of the disease is more rapid when it commences in the synovial membrane; abscesses are soon formed, and the secretion of pus is more abundant.

When the disease commences in the bones, the extremity of the

femur is the part often affected; though, from my own experience, I should say that the tibia is most frequently attacked. The pain is extremely slight at first—often absent, the earlier symptoms being some stiffness of the joint, or slight lameness. This may continue for a long time before pain is complained of. We are agreed in this country as to the slight nature of the pain in cases of incipient inflammation of the spongy ends of the bones; but it is right to mention, that Rust, my old preceptor, and a great German authority in articular diseases, mentions severe pain as one of the peculiar characters of this same affection. The swelling of the joint is different when the inflammation commences in the bones; at first, it takes the form of, and is confined to their articular extremities. The ends of the bones appear to be enlarged, and there is little tumefaction from effusion of plastic matter or serum in the joint, or about it. At a much later stage, swelling ensues, and follows its course, the synovial membrane and soft tissues becoming implicated. The progress of this form, as I have said, is usually very slow; but, as I have likewise observed, the absence of pain and tumefaction to a considerable degree, is not sufficient to enable us to decide the question of locality. I have seen many cases in which the disease commenced in the synovial membrane: it was extremely slow in its progress; the effusion of plastic matter was slight, and its tendency to become organized into false membranes, &c., was very slight also; there was little swelling; less pain. In this state has the disease continued for months. Suddenly it becomes more acute; abscesses form; the health gives way; the limb is amputated, and on examining the joint, we find lesions confined exclusively to the soft parts within its cavity.

The treatment of chronic inflammation of the knee-joint is to be conducted on the same principles as those which guide us in the treatment of diseased joints in general; but I shall enter into some details on this important part of the subject for two reasons: first, you will be called upon to treat this joint much more frequently than any other; and, secondly, it is the joint in which the effects of good practice are most remarkable, many a limb being now saved which would have been sacrificed a few years ago. The detailed account which I have given you of the morbid appearances of this complaint in its different stages will be of much assistance to you towards understanding the *rationale* of the treatment. You have seen how it may be distinguished into three stages: in the first we have chronic inflammation of the joint, giving rise to effusions of plastic matter, which undergoes several transformations, and which leads to suppuration; in the second stage we have abscesses, softening and ulceration of the cartilages, relaxation of ligaments, caries of the heads of bones, necrosis, and secondary luxations; in the third stage we have severe constitutional effects tending to destroy life, or we have a reparative process tending to cure by anchylosis. Let us now consider the treatment as applicable to various circumstances of each of these three stages.

The first stage is inflammation, and the first indication is to subdue inflammatory action. This will be the most efficacious way of preventing the development of those accidental products which tend to disorganize the joint: and here I would warn you that, whatever treatment be adopted, it must be carried out with steadiness and perseverance for a considerable length of time. Chronic inflammation of the knee-joint is not easily mastered; it has a tendency to return again and again, after having been apparently subdued; yet it is not beyond our control, and the want of success in many cases should, I am persuaded, be attributed to want of perseverance in continuing or submitting to the proper treatment.

[Bloodletting is little, if at all applicable to those cases which occur in scrofulous children, and even antiphlogistics will be of little or no use unless seconded by means more efficacious, such as absolute rest of the inflamed joint, and a favourable position of the limb.]

Neither bloodletting nor blisters nor any other remedy, whether local or general, will have much effect in chronic inflammation of the joints, unless the articulation be kept in a perfect state of repose. This condition is absolutely necessary; and if we see so many cases prolonged for months and years in a state of what may be called semi-cure, it is because absolute rest of the joint has been attained in an imperfect manner or for limited periods. This state of rest is procurable by the use of artificial means, but as it is highly desirable that the joint should be placed at rest in a good position, this must not be neglected. You know already what I consider a good position, generally speaking, for inflamed joints. It is one which produces the least distension of the inflamed capsule—the least pressure on the articular surfaces; it is one which will be the most useful should anchylosis ensue.

For the knee-joint, this position consists in a very moderate degree of flexion, the foot remaining in its normal position. No matter what the stage of the disease, we should always endeavour to get the limb into this position. At the early period of which I now speak, it is easy to bring the limb into the extended posture by mere traction of the hands: a few attempts may be required, and if the muscles are strongly retracted, as sometimes happens, chloroform should be employed to relax them. Great benefit will be derived from fixing the limb in this extended position as early as possible. But how is the limb to be fixed? Repose in bed, or on a couch, even at the earliest period, will not ensure the absolute rest which is required to promote the cure. This is the error into which many practitioners fall. The case appears slight, because it has commenced in a very chronic manner; there is little pain, a slight degree of swelling, and an insignificant halt in the gait. Hence the patient is allowed to walk about occasionally, or at the most is directed to repose the limb on a chair or couch. The consequence is, that, as every motion of

the limb brings an increased flow of blood to the affected tissues, the inflammatory action is kept up, and the development of accidental tissues is promoted until the disease becomes fully established.

But I shall not say any more about keeping the limb in a state of absolute rest, because in my opinion repose should always be combined with another powerful means—viz., compression of the limb. The means employed for effecting this compression will serve, at the same time, to keep the limb in a state of rest. Observe that I say the limb and not the joint, for it is essential that the whole, or at least, the greater part of the affected limb should be kept in a state of rest, and submitted to compression. The utility of these two means is admitted by all practitioners. What I would insist on is, that they should be employed more extensively than is common—that is to say, that the pressure should extend over a considerable portion of the limb, instead of being confined, as often takes place, to a few inches above and below the inflamed joint. The advantages of compression have been fully established by experience; they may also be rationally explained. Compression of the tissues diminishes the flow of blood; this is a mechanical effect. It also produces an active physiological effect in promoting absorption of effused fluids, and preventing the organization of accidental products. The influence of compression in promoting absorption is well seen in the treatment of cancerous tumours by pressure. This has such an effect in dissipating that portion of the tumour which depends on serous and plastic effusions around the malignant muscles, that some practitioners have been deceived into believing they have cured cancer by its means. For attaining the desired objects through rest and compression, a great variety of methods have been employed. I can only notice the principal. Some surgeons prefer using pressure, in such a manner that absolute rest of the limb shall be ensured at the same time; others employ mere simple bandages, and keep the limb at rest by the use of splints. Sir B. Brodie recommends sometimes one method, sometimes another, according to the severity of the case. In milder cases he employs a calico bandage, with strips of adhesive plaster in alternate layers. Another convenient bandage is made of stiff leather and small spiral wires, secured by a lace. In cases of longer standing, when the joint is more seriously implicated, a greater degree of support will be required. Gutta percha splints may then be applied, or a broad leathern splint may be placed on each side of the limb. This splint is made of stiff cow-hide, softened in warm vinegar and moulded on the limb, where it is allowed to dry. To these methods it has been objected that they do not exercise a sufficient degree of pressure, and that they do not ensure perfect immobility of the affected parts. The same objections apply to the hollow splints, and to those made of gutta percha.

The method employed by the late Mr. Scott I have already described to you. The principle upon which he acted was to exercise long-

continued pressure by means of bandages and strips of adhesive plaster. In his hands this method produced many remarkable results, chiefly, I believe, because he followed it up with unwearied perseverance. Any degree of pressure may be thus obtained; but the bandages do not fix the limb sufficiently, and a great deal of trouble is caused whenever it becomes necessary to remove them. When bandages are employed, flannel, I may observe to you, is a better material than calico, because it is not so liable to become loose. The common starch bandage I cannot recommend. It gives strong support, but is very stiff and disagreeable to the patient, and cannot be adapted to the decreasing size of the limb as inflammation subsides. For my own part, I prefer exercising compression by means of bandages or plaster strips, and rendering the limb immovable by properly adjusted splints. The bandages should extend from the foot to the lower third of the thigh, and the splints should in all cases pass down to the foot, being furnished with foot-boards, to prevent rotation of the foot. This is essential. Bearing in mind these principles, the surgeon may exercise his ingenuity with respect to the best materials to be used. The degree of pressure, I need hardly remind you, must be graduated according to the condition of the affected joint. It should never produce much pain; and if it becomes painful, the bandage should be removed at once. To prevent an unequal degree of pressure, it will be prudent to fill up all the concavities of the limb with thin cotton pads; and when immovable bandages are employed, the prominent osseous surfaces should also be protected in a similar manner. Increased attention to the state of the limb is required towards the close of the first stage, when abscesses may be expected; and if any discharge should have taken place, the splint should be lined with oiled skin.

Next to the remedies just mentioned, counter-irritation must take rank. This means has been employed from time immemorial in the treatment of chronic inflammation of the joints. It is used in various degrees. Sometimes the skin is merely reddened; we then call the means employed rubefacients. Sometimes a higher degree of stimulus is had recourse to; the skin is broken; under this head we may range blisters, tartar emetic ointment, &c. Finally, the extreme degree is produced by the use of cauteries, either the actual or potential, with which I would class setons and issues. Various kinds of rubefacients have been employed—ammonia in oil, turpentine, camphorated spirits, &c., the acids. Sir B. Brodie recommends a stimulating liniment, composed of one drachm of iodine in one ounce of alcohol, or an acid liniment, composed of one drachm and a half of sulphuric acid, half an ounce of spirits of turpentine, and one ounce and a half of olive oil. These stimulating liniments are only applicable in very chronic cases, when the swelling and pains are slight. Blisters act more efficaciously. In cases where the disease is chiefly confined to the synovial membrane, they promote the absorption of

effused fluids in a remarkable manner. The blister should be applied just above the joint, and be repeated frequently; they should not be kept open. Other substances may be employed in such a way as to break the skin and imitate the action of blisters; these are croton oil and tartar emetic, which produce pustular eruptions, and tincture of iodine, which makes the epidermis peel off. The tartar-emetic ointment should never be used for weakly or scrofulous children. Croton oil, in liniment or plaster, is much more manageable. Tincture of iodine is generally preferred. The joint may be painted over with this substance until the epidermis is entirely detached in brown scales. Counter-irritation to any great extent should not be employed in scrofulous cases; but as these cases are often characterized by effusions into the cellular tissue outside the joints, by the development of cellulo-vascular tissue, and by effusions into the sub-synovial cellular tissue, or underneath the periosteum, mild counter-irritation is useful. The plan which I adopt consists in applying a blister for a few hours over the affected joint, and repeating its application from time to time. In chronic cases unconnected with the scrofulous diathesis, or when the disease appears to assume a tendency towards reparation, stimulating applications may be employed with advantage. Cauterization of the skin acts in the same way as blisters, but it is much more energetic; hence cauteries are not to be recommended except in very chronic cases, and when milder revulsives have failed to produce any effect. The actual and potential cautery has been employed; Rust was constantly in the habit of using it. The actual cautery, however, is not applicable to superficial joints like the knee, and I shall not notice it here. The same remark applies to caustic potass. When the use of caustic is thought advisable, it will be better to employ the Vienna paste, which is more manageable than any other. Moxas and issues are sometimes useful; but they should not be kept open too long, else they lose their revulsive effect, and only weaken or irritate the patient.

The general treatment of chronic inflammation of the joints is of as much importance as the local treatment, and in scrofulous cases it is much more so. Indeed it is difficult to understand why a disease so apparently mild in its nature as this often is, should be so obstinate and so difficult of cure, if we regard it as a mere local inflammation. It is not always easy to discover what the nature of the general disturbance is. Many patients are attacked by disease of the knee, who seem to be of good constitution, and who tell you that they have always enjoyed good health; still I cannot help always suspecting something more than a local malady, and I would advise you in all cases to inquire most particularly about the general health of the patient, and endeavour to restore the several functions to a natural condition. The most active general remedies are mercury, iodine, and cod-liver oil. Mercurial preparations are administered with most advantage in cases of synovitis, when the inflammatory symptoms are

rather active, and when they have become so during one of the exacerbations to which I have so often referred. It is unnecessary to insist on the circumstance that the general health of the patient must be such as will admit of the use of mercury. Iodine seems to be indicated rather in chronic cases, where no active symptoms are present, where the joint is much swollen and the swelling firm, where the patient's health, without being broken down, is not exactly what we could wish it to be. It may be used in frictions, and given internally, under the form of iodide of potassium, in doses of from three to five grains twice a day. To produce any effect, the iodine must be continued for a considerable time—say a month; after which we suspend its use for some days, and then resume it. Preparations of iodine are more efficacious in scrofulous than in other cases; and the same may be said of another powerful remedy—cod-liver oil, the value of which in the treatment of articular diseases, has been fully established within the last few years. The cod-liver oil is to be preferred to iodine in all scrofulous cases, and in those in which the general health is much deteriorated. M. Leuret thinks that it has more effect in cases where the disease begins in the bones than when the synovial membrane is primarily attacked. However this may be, there is no single remedy from which so much benefit may be expected in protracted cases of the disease as from cod-liver oil. Like iodine, its action seems to be somewhat transient; and hence we should administer it for many months together. Sir B. Brodie strongly recommends the preparations of iron in the scrofulous form, and the syrup of iodide of iron will be found an excellent preparation in these cases. The other general remedies are chiefly such as act by improving the patient's health and invigorating his constitution.

[In cases where reparation is going on, your chief object will be to preserve as much motion in the limb as possible, taking the greatest care that your attempts in this direction do not excite inflammation.]

In some cases, the joint remains merely stiff, from contraction of muscles and fibrous organizations outside the joint, without anchylosis. Here we must not defer employing the necessary means too long, or we run the risk of seeing the joint become anchylosed from long inaction. Frictions with the hand, and douches, are very useful in removing the stiffness now alluded to. But passive motion must also be employed; and the most important question we have to settle is—When may passive motion be commenced without danger? The safest answer we can give is this: Do not commence passive or active motion so long as movement of the joint occasions any pain. The first movement should be made by the surgeon himself, who will observe the effect produced, and after some time the patient may be allowed to move the joint himself. It may, however, happen that the contraction of the muscles is so great as to require means of a special kind to overcome it. I mentioned how they were sometimes conveyed in [illegible]

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cords, while the tendons were bound down by firm adhesions to the surrounding tissues. Here, if you can ascertain, by examination of the joint, that osseous anchylosis has not taken place, benefit may often arise from dividing the tendons of the contracted muscles. The division should be effected by subcutaneous incision—that is to say, by passing the point of the knife through the skin, and then dividing the tendon from within outwards, without cutting the integuments at the same time. Some of you may remember an operation of this kind which I performed in this hospital on a boy named Mortimer Smith, twelve years of age. He had laboured under scrofulous disease of the knee, followed by great stiffness of the joint, from permanent contraction of the muscles. I divided the tendons of the biceps and semitendinosus and semimembranosus muscles in the way I have mentioned, and then applied one of M'Intyre's splints with a screw. The limb was extended by these means. In other cases, the stiffness and contraction may be overcome by mechanical apparatus, without division of the muscles. The most simple means is the screw-splint just mentioned. This treatment is only applicable to cases in which the rigidity and flexion of the joint are chiefly produced by muscular contraction. In many cases, where disease of the knee has been neglected, or when, from its natural progress, certain changes have taken place within the joint, the treatment now spoken of will be unavailing. You are aware that the complaint has often a tendency to terminate in false anchylosis. Here the limb presents various degrees of flexion, from an obtuse to a right angle; sometimes, indeed, the heel is drawn up so far as almost to touch the buttock. This, of course, cannot take place without considerable retraction of the flexor muscles. But this is not all; the tendons of the contracted muscles become fixed to the subjacent parts by chronic inflammation; fibrous bands of new formation increase the deformity; the tendinous sheaths of the muscles contract, become thick, and are also bound down; in short, the various tissues around the joint are united into firm, resisting masses, and the limb is almost as firmly fixed in its abnormal position as if the opposite surfaces of the bones were united together. In this country, we are not in the habit of interfering with unpromising cases of this kind, but Dieffenbach and other German surgeons have shown that they are not altogether beyond the resources of our art. The method which they adopt is as follows:—The patient is placed on his belly on a table, the pelvis is firmly fixed by two assistants, another holds the sound limb on one side, while a fourth seizes the lower part of the diseased limb, and keeps the parts to be divided in a state of tension. Subcutaneous division of the contracted and adherent tendons &c., is now effected. The operator commences with the tendon which appears most prominent and tense. This is sometimes the tendon of the biceps, sometimes of the semimembranosus or semitendinosus muscles. The operation itself is quick, and very easily performed: the skin is raised, the tenotome is passed underneath the tendon, and this latter is

divided from within outwards. The most convenient point for dividing the tendons is about an inch above the angle formed by the flexed joint. When the cutting instrument has been withdrawn, some force is used to extend the joint; this makes certain tendinous bands salient and tense. The operation is now repeated, extension employed as before, and the several bands are divided so long as they oppose any considerable resistance to the extension of the limb. A strong, folded napkin is then passed round the knee, and held by the assistants in such a way as to prevent laceration of the integuments. This done, the surgeon flexes and extends the limb with a certain degree of force, in order to lacerate any cellular adhesions which may have been formed; if any resistance is offered by tense fibrous bands, these are likewise divided in the manner described. This plan has been adopted here by my colleague Mr. Ure, with complete success. The after-treatment is simple: water-dressing is applied over the points where the cutting instrument has been introduced, the knee is enveloped with lint, the whole limb is covered with a flannel bandage, and a strong concave splint, also lined with flannel, is applied from the middle of the thigh to the middle of the leg. Care is taken to fill the space between the ham and splint with pads of lint, and the splint is kept firmly in its place by a bandage, which is particularly well secured above and below the patella. If the patient do not suffer much, the splint is allowed to remain on for several weeks. When any tendency to retraction manifests itself during the after-treatment, the screw-splint must be applied, and extension made from time to time. This may appear to you a severe operation, but it is much less so, in reality, than it would seem to be from the description of it.

True anchylosis of the joint is also frequently observed after chronic disease of the knee. If the surgeon has taken care during the course of the disease to bring the limb into a good position, the patient preserves a tolerably good use of the limb, which is nearly straight; but in many cases the limb is bent, and the patella adheres to the femur, while a certain degree of motion exists between this bone and the tibia. In these cases, and likewise in those where more or less osseous union has taken place between the opposite surfaces of the joint, nothing can be done for the relief of the patient: for I never would advise you to imitate the barbarous practice of M. Louvrier, and endeavour to straighten the limb suddenly by violent extensions. It is true that the effects of this violence are often much less than one would be disposed to conclude that they should be; but death has been the immediate result in some cases, while even in the most favourable the result has been little better than if the patient wore a wooden leg.

Another effect of the disease is secondary dislocation of the tibia. When this occurs, an attempt may be made to keep the bone in its place by means of splints. It is often easy to reduce the displacement, but it is extremely difficult to keep the head of the tibia from slipping

back behind the external condyle of the femur. This tendency depends on the destruction of the cartilages and end of the femur, and no effectual means of counteracting it have been discovered.

The treatment of the third stage of chronic disease of the knee is entirely palliative. I have described to you the various symptoms of a secondary nature, which may appear when the constitution of the patient begins to suffer under the continuance of incurable disease. An operation is now the only resource left, and the only questions you have to decide on are, whether amputation or excision of the joint should be selected, and at what time the operation should be performed. The latter is a most important point, and one that will require very serious deliberation. We have, on the one hand, to avoid the error of removing a limb which might perhaps be saved; on the other, we have to avoid the still more serious error of sacrificing the patient's life in an attempt to preserve his limb. The general rule which I would lay down is this: If the case has been under treatment for some time, and you are convinced that your remedies have failed to check it, then operate as soon as the general health begins to suffer from the progress of the disease. If the case has not come under your care until a late period, or if the constitutional symptoms do not make much progress, the effects of treatment may be tried for a short time, the operation being held in reserve as a last resource. In scrofulous cases the rule now laid down will admit of some relaxation; although these cases are slow, unpromising in appearance, and often attended with considerable disorganization of the joint, yet experience proves that recoveries may take place under very discouraging circumstances. The general health of scrofulous patients is visibly improved by remedies and hygienic means; any amelioration of the health soon acts on the local disease, and hence operations on scrofulous patients of tender age may be deferred for a longer time than in other cases; in a word, until the effect of the disease on the general health is such as to render an operation indispensable. I have also insisted on the necessity of not deferring an operation too long, from remarking a circumstance connected with operations for articular disease, which appears to have escaped the notice of all writers on diseases of the joints. Numbers of patients, whose limbs have been amputated or whose joints have been excised from chronic articular disease, die of purulent infection of the blood.

Before concluding the subject of treatment, it remains for me to notice excision of the knee-joint as a substitute for amputation of the thigh. Is excision of the ends of the bones to be recommended as a general rule? Is excision admissible under any circumstances, or should it be rejected for the knee-joint? If admissible, what are the particular circumstances in any given case which should lead us to prefer it to amputation? in other respects, what are the special indications of excision?—These are interesting questions which I should like to discuss, but to do justice to them at the conclusion of

a long lecture would be impossible. Some surgeons affirm that we should always prefer excision to amputation; others, again, condemn excision. Mr. Syme, in a recent lecture, which has excited a great deal of discussion in the medical world here, argues with considerable force against the propriety of our ever excising the knee-joint. Although I agree with Mr. Syme in a great deal that he has said, yet I cannot go so far as to condemn this operation altogether. It has its defects, but the preservation of a limb is often an object, even though the limb may not turn out a very serviceable one. The principal objections which may be raised against excision of the knee-joint are two: in the first place, a considerable time is required to ensure a cure, and effect the complete healing of the wound (the period of after-treatment, in fact, generally extending over six and twelve or eighteen months); in the second place, the limb, though preserved, is sometimes of little or no use to the patient. Hence the chief indications of the operation are to be derived from the general condition of the patient and from the state of the joint. In order that excision becomes admissible, the general health of the patient must not have suffered much from the disease of the joint; he must be in a condition to bear up against the long confinement and other influences to which a protracted convalescence must expose him. On the other hand, the local disease must not have proceeded too far, or destroyed the soft and hard tissues of the joint in too extensive a manner. If this be the case, and, above all, if any considerable portion of the femur be implicated, the extensive removal of parts will not only require a very protracted after-treatment, but will leave a limb of little or no use whatever to the patient. These remarks, however, rather apply to the indications and contra-indications of the operation, and not to its results, when it is performed at a proper time and in a scientific manner. The results of the operation, thus performed, seem to be more favourable than has been commonly supposed, and they have been very clearly set forth in an excellent memoir recently published by Mr. Butcher, of Mercers' Hospital, Dublin. Mr. Butcher has collected no less than thirty-one cases of excision of the knee-joint performed between July, 1850, and December, 1854. Of these thirty-one operations, five terminated in death; in sixteen the result is stated to have been perfect use of the limb; one produced an useful limb; the result of one is given as encouraging; one was followed by recovery, one by perfect anchylosis, while six cases were under treatment and recovering at the time of Mr. Butcher's publication. These results are certainly very encouraging, and Mr. Butcher deserves much praise for the industry which he has shown in collecting the cases, and for his careful investigation of them. I would strongly recommend his paper to you, as likewise the reports on excision of diseased joints contained in the last two volumes of 'The Lancet.' Next to seeing cases yourself, the greatest advantage will be derived from meditating on these faithful portraits of disease and practice.—*Lancet, Aug. 25, and Sep. 1, 1855, pp. 161, 183.*

47.—HYSTERICAL AFFECTION OF THE HIP-JOINT.

By William Coulson, Esq., Surgeon to St. Mary's Hospital.

The following case, the subject of which was a patient under the care of Mr. Coulson at St. Mary's Hospital, presents a tolerably well-marked instance of that affection which is occasionally so troublesome to the Surgeon, known under the name of hysterical joint, supposing at least that the diagnosis made in this case was, as there is reason to believe, correct. This affection is not so frequently, perhaps, met with in Hospital practice as in private, females belonging to the richer and consequently the more idle portions of the community being most liable to it, in common with the other affections incidental to hysterical subjects. There does not seem to be a great amount of difficulty in diagnosticating the presence of hysterical affection of a joint, if the history be duly inquired into, and the condition of the joint and limb affected carefully scrutinized. The symptoms, as is well known, are severe pain in the joint, now and then a slight puffy swelling around, together with evidence of hysteria, &c. The character of the pain is important. It is more severe than in inflammatory affections. Pressure on the joint is productive of pain when made at almost any point, and the pain produced is even greater when slight pressure is made than when a greater degree of force is used. Now it often happens that in true inflammatory disease of a joint it is found necessary to examine carefully before the surgeon finds a spot which is painful on pressure, this observation being of course intended to apply to inflammatory affections of a chronic nature, with which alone the hysterical condition is liable to be confounded. The course of the affection is peculiar, and a very important point in the diagnosis. The joint affected remains in much the same condition for a considerable time. Months and even years may elapse without any change occurring for the worse. This is hardly possible in the case of a joint in which true disease is progressively extending. One additional point observed by Mr. Coulson some time since is the fact that the limb affected is liable to frequent alternations of heat and cold, this change of temperature being not only obvious to the patient but to the observer also. In the case about to be detailed this circumstance was noticed, and together with it a condition pointed out by Sir B. Brodie, viz., a loss of sensibility of the skin covering a portion of the leg. These elements for the diagnosis of hysterical joint are of value, for their recognition may prove of great service in elucidating the nature of a case involved by particular causes in obscurity. It is singular enough that the joints most frequently presenting the hysterical affection should be also those in which chronic, inflammatory, and other affections are most commonly observed.

M. A. Q., aged 24, single, by occupation a cook, was admitted into St. Mary's Hospital, October 6, 1854. Her previous health is described as good, on the whole. Five years ago she had a fall, which

injured the right knee to a slight extent, but of this she soon recovered, and felt no further unpleasant effects. Six weeks before her admission into the Hospital she had an attack of cholera. The catamenia commenced at a late period, at the age of 21, and have never been very regular, the period often passing by without its occurrence. Her family are tolerably healthy: one sister died of consumption. The patient is a healthy-looking young woman.

The patient ascribes her complaint to the fall on the right knee five years ago. She fancies that the right hip has been larger than the other for the last twelve months. Four months ago the right knee was swollen and painful, and leeches were applied.

Present state.—She is able to walk, but walks lame, and the motion of the right leg and knee gives great pain, the pain commencing at the knee, and extending up to the hip-joint. The knee is not at all swollen, but tender on pressure; there is no apparent enlargement of the parts around the hip-joint; pressure is painful all over it. There is pretty constant pain in the hip-joint, and this has been present for the last three weeks. She complains of a want of feeling at the inner ankle and over the foot, on the dorsum as well as the sole. The parts thus insensible to touch are also colder to the feel than the corresponding surfaces of the other leg. This insensibility and lowering of temperature are evanescent, coming suddenly, lasting a few minutes, and then disappearing as suddenly as it came. There is no distortion, lengthening or shortening of the limb.

A belladonna plaster was applied round the hip-joint, and an ounce of quinine mixture prescribed thrice a-day.

October 9th.—The pain was more severe, and three grains of Dover's powder were added to each dose of the mixture. On the 11th the quinine mixture was omitted, and a combination of tincture of iron and hyoscyamus substituted.

October 16th.—The hysterical and nervous condition of the patient being more completely recognized, a draught of tincture of valerian, with tincture of hyoscyamus and camphor mixture, was ordered three times a-day.

October 19th.—The knee is now the most painful part. The condition of the leg remains much the same. The alternate elevation and depression of temperature of the affected limb is still observed. A belladonna plaster to be applied to the knee.

During the remainder of the patient's stay in the hospital matters progressively assumed a more favourable aspect. The medicines given were occasionally changed, but for the most part consisted of the remedies usually found most advantageous in hysterical cases. The patient was discharged from the hospital November 10th, at which time she was able to walk quite readily; there was no lameness, no distortion of the limb, but the patient seemed to have a too great tendency to make much of trifling ailments.—*Med. Times and Gazette, July* 7, 1855, *p.* 19.

48.—ON DISLOCATIONS OF THE HUMERUS.

By Dr. Frank H. Hamilton, Buffalo.

[Of a great number of cases recorded by the author, two-thirds were cases of dislocation of the head downwards, and the remainder forwards. About one-fourth of the whole number were reduced within a few hours of the accident, the remainder at periods varying from one day to eight weeks. He says that]

The procedures adopted by myself in the reduction of recent cases has been much varied in different cases, and sometimes in the same case, but that the reduction has been generally effected while pulling upon the arm outwards, and a little downwards from the line of the body. In some cases the extension has also been made successfully at right angles with the line of the body, and in others directly upwards and over the head, and in others manipulation alone, without extension, has been employed. But whatever direction has been adopted in the extension, I have never omitted to make a direct application of the counter force to the scapula, through the acromion process, which I regard as vastly more effective than any counter force applied to the axilla, and to which, indeed, I have generally observed that the successful result was due. The necessity of avoiding the axillary margin with the heel, or the counter extending force, is well enough understood, but I doubt whether surgeons have sufficient(y appreciated the difficulty of doing this, or indeed the complete impossibility of making here any effective pressure against the scapula, even though the heel shuns the muscular margins, and buries itself however deeply in the axilla. A moment's attentive consideration must convince us that by this procedure the scapula may be lifted outward from the body, but not certainly carried backwards in a direction opposed to the extension. If, therefore, the heel in the axilla serves any useful purpose, it must be as a fulcrum; it may also serve some useful purpose as a mode by which both the patient and the operator may be steadied while extension is being made at the forearm.

It is against the end of the acromion process, therefore, that I have always sought to make counter-extension when pulling downwards or outwards, and against the top of the scapula when pulling upwards.

The usual appliances for confining the scapula, such as a band across the acromion process, or a sheet with a fenestrum through which the arm is thrust, &c., I have found generally unreliable, and I have preferred the fingers or the hands of a stout assistant, or my own foot.

In one case only have I resorted to the practice first suggested by Nathan Smith, of making the counter-extension from the opposite arm. The reduction was accomplished easily. I have no doubt of the correctness of the principle upon which the suggestion is based.

In several instances my attention has been called to a remarkable fulness in front of the head of the bone, which has continued for many months after the reduction has been effected, the patients having in some cases applied to me to know whether this did not indicate that the shoulder was not properly set, since it seems, upon casual inspection, like a partial forward displacement of the head of the bone, and which seeming is the more conclusive, because there is often a corresponding flatness or depression behind. Yet a careful examination has proven that this fulness is not due in any degree to the position of the head of the bone from non-reduction of the bone or laceration of its capsule. It is equally present where the elbow is carried forwards, and when consequently the head of the bone is thrown back in its socket, as when the elbow is carried back. It has been observed as often also, as will be seen by reference to the cases, where the luxation has been downwards into the axilla as when it has been forwards. While I am not prepared fully to explain the cause of this phenomenon, I am disposed to regard it as a purely *muscular* fulness, and as having relation only to the injury which the pectoralis major, or perhaps some portion of the deltoid muscle, has sustained.

I am certain that muscular contraction and rigidity is the most frequent cause of the complete anchylosis, as well as of the minor embarrassments to freedom of motion, which so often ensue upon those accidents, and which I would term *muscular anchylosis*, to distinguish it from those few cases of anchylosis which result from fibrous adhesion about the joint. In but few instances immediately after the reduction has the patient been able to lift the arm by his own volition to a right angle with the body, yet in every instance it could lifted, without causing much if any pain, by the surgeon. The muscles, either by the displacement or in consequence of the means employed to reduce the bone, have suffered serious injury, and the present paralysis, where indeed it is not due to lesion of some nerve, must in some measure foreshadow the future contraction and rigidity.

In cases 27 and 28 of unreduced downward luxations the patients could carry the elbow back much further than they could forwards; and in case of a forwards luxation the same thing was observed, while in four cases a general muscular anchylosis occurred, which lasted many months, and during which time motions of the joint were nearly or entirely lost, the scapula moving always with the humerus. In each case, however, after a period longer or shorter, the motions of the joint gradually returned.

The application which I propose to make of these facts is, that the head of the humerus may be displaced after a reduction has once been well accomplished, by the mere force of a gradual muscular contraction, steady and long continued, and without the aid of extreme violence, or the intervention of sudden spasm; and that in case of an

unreduced shoulder, we are not forced to conclude that it has never been properly reduced, because it cannot be shown that any new accident has occurred, or that the patient has had spasms of the muscles, or that he is subject to such dislocations from trivial causes, or indeed although the subject was not himself conscious of a sudden escape of the bone, since in such a case, the bone, stayed and supported on each side by muscles in a state of extreme rigidity, would move from its socket by the slightly preponderating action of one set, so quietly and silently as not to be observed.

My attention has been called also to the subject of the sound or tactile sensation produced in the reduction of this bone, and especially in reference to the medico-legal question whether those present in the room, and not assisting in the operation, could have heard the reduction, and thus have become more competent to testify to the fact.

It was upon this point, so material to both parties, that medical gentlemen were not agreed in the case of —— *v.* the late Professor Horace Webster.

I find that in most cases there was a tactile sensation palpable to the operator and his assistants, and not always very easily distinguished from the sensation of audition, while in several cases there was an audible snap, heard distinctly in all parts of the room, but never was the snap audible where anæsthetics or mechanical appliances were used. Under these latter circumstances a snap or a sudden slipping may occasionally be felt, but never heard.—*Transactions of the State Med. Society of New York, Feb.* 1855, *p.* 46.

49.—ON DISLOCATIONS OF THE ULNA.

By Dr. Frank H. Hamilton, Buffalo.

I do not remember ever to have seen a dislocation of the upper end of the ulna without, at the same time, a dislocation of the radius. Nothing is more common, however, than a diastasis of the ulna and radius at their lower ends, or perhaps quite as frequently it may be regarded as a diastasis of the ulna and carpal bones through a rupture of the internal lateral ligament, in consequence of which the styloid process of the ulna is made to project slightly outwards, and occasionally forwards or backwards. This partial separation occurs, I believe, in all cases of fracture of the lower end of the radius, accompanied with displacement of the fragments, and in most cases where no such displacement exists. In 24 cases of this fracture, recorded by me, no exception to this rule is mentioned. In some instances the projection is, however, very trivial, while in others it is very striking.

The same thing is present after the majority of severe sprains of the wrist joint, and it is not unfrequently observed in both of the

wrists of old persons; occasionally also it is observed in those who are younger, but of a lax and feeble habit, with whom it exists not as a consequence of any accident, but only of that preternatural laxity of the capsular and ligamentous structures, which may produce equally a splaying of the foot or a yielding and diastasis of any of the articulations.

Accompanying the displacement there is also unusual mobility of the lower end of the ulna, so that by moderate pressure the deformity may be sensibly diminished. But I have never seen any permanent good derived from either splints, or bandages, or compresses, or from any other mechanical means which have been employed to retain the bone in place. On removal of the pressure the deformity has always returned, and I think always in the same degree as before.—*Ibid, p.* 56.

50.—ON DISLOCATIONS OF THE RADIUS.

By Dr. Frank H. Hamilton, Buffalo.

[Of thirteen cases recorded, in eleven the head of the radius was dislocated forwards, and in only two cases backwards. The experience of the author differs from that of many surgeons who have met with dislocations backwards much more frequently than dislocations forwards.]

Of the whole number of dislocations, backwards and forwards, of the head of the radius, seven were reduced immediately, or soon after the accident, yet only five remained reduced. One case was reluxated by an attempt on the part of the father to straighten the arm; and another case was accompanied with a fracture which would not permit it to remain in place. Those which remained reduced have resulted in useful and nearly perfect arms. Of the eight unreduced, one was reduced after eighteen months, and continued in place; four, I think, were not recognised as dislocations at the time of the accident, although examined by surgeons; two were recognised, but the surgeons failed to accomplish the reduction; the remaining two were reduced, but became again displaced.

These cases, so unfavourable to our art, since only six of thirteen are permanently reduced, demonstrates, however, not so much the difficulty of accomplishing the reduction in cases of simple dislocation, as the difficulty of making the diagnosis.

Surgeons are not agreed as to what is the usual position of the forearm, as to supination or pronation, in the dislocations of the head of the radius.

I have examined more especially, in reference to this question, the unreduced cases. In three cases of forwards luxation, the forearm was found forcibly proned; in one case it was in a condition midway between supination and pronation, and in no case of either recent or ancient luxation have I found it supined.

I found the arm proned also in one case of dislocation backwards.

I have seen but one dislocation of the lower end of the radius, and this was not complete.—*Ibid, p. 55.*

51.—ON DISLOCATIONS OF THE TIBIA.

By Dr. Frank H. Hamilton, Buffalo.

Of the seventeen dislocations of the tibia, the whole number occurred at the lower or distal end. Sixteen were dislocations inwards; the only remaining dislocation being a dislocation forwards. Of the sixteen inward dislocations, seven were complicated with fracture of the fibula, six with fracture of the fibula and malleolus internus, three were compound and complicated with fractures also. Two of the compound dislocations resulted in amputation and recovery; one was not amputated and the patient died. Of the fourteen dislocations which were complicated with fracture, but not compound, two remain unreduced, and only four are known to have left no permanent deformity.

No cases of dislocation of the lower end of the tibia outwards are recorded, since all displacements of the tibia outwards must involve a displacement of the fibula also in the same direction.

In every instance the dislocation of the tibia inwards has been accompanied with a fracture of either the fibula or of the malleolus internus, or of both. I think, however, I have seen two or three inward dislocations of the tibia without a fracture, but I find no record of such cases, nor does my memory enable me to recall them.

In classifying dislocations of the ankle, I have adopted the usual nomenclature, and have named all those dislocations in which the tibia projects inwards from the foot, "inward dislocations of the tibia," yet I have some doubts as to the propriety of this appellation. This accident seems to me to have been in general rather a lateral *rotation* of the foot upon the lower articulating surfaces of the tibia and fibula. Of all the ginglimoid joints, the ankle approaches most nearly in form to a ball and socket joint, in consequence especially of the marked prolongations of the malleolus internus and externus. In other ginglimoid articulations lateral displacements are not unfrequent, but lateral rotation can scarcely by any accident occur. Here, however, the reverse holds true; lateral displacement is difficult, while lateral rotation is comparatively easy of accomplishment.

The majority of cases which occur involving a disturbance of the relative position of the ankle joint surfaces, are, I am satisfied, of this latter character, viz: lateral rotations within the capsule, and other than true dislocations; and although the restoration of the joint surfaces to position, is, in general, easily accomplished; yet, in consequence of either a fracture of the fibula, or malleolus internus, or of a rupture of the internal lateral ligaments, it will almost always happen that some deformity will remain. The fragments of the fibula will

fall inwards towards the tibia, and the foot unsupported by either its fibula or its internal ligaments, will incline perceptibly outwards. Nor can this be prevented, usually by any mechanical contrivance. Indeed, it would be easy to demonstrate, as I have often done to my pupils, that even Dupuytren's splint, usually employed in this accident, must fail of success in a great majority of cases; since the subquent deformity is due, less to the fracture of the fibula and its consequent displacement, than to the loss of the internal ligaments, which loss nature can seldom fully repair. The whole apparatus of the joint has suffered greatly, and its form and functions, therefore, are not likely to be completely restored, whether the fibula has participated in the injury or not.

If, however, it were true that a fracture and displacement of the fibula is the sole, or essential cause of the subsequent deformity, it would still be found generally impracticable to avoid the maiming, since it would still remain impossible to lift the broken ends from the tibia, against which, or in the direction towards which, they are so prone to fall. Inversion of the foot does not accomplish it, nor have I ever been able to make anything but the most trivial impression upon the upper end of the lower fragment by pressure upon the lower extremity of the fibula.

I think too much confidence has been placed in the efficiency of "Dupuytren's splint." I believe, indeed, that this splint ought generally to be preferred as a means of support and retention, after this accident; but I doubt whether it is able to accomplish more than a moiety of all that its illustrious inventor proposed.

In two, only, of all the cases reported, am I quite certain that there was an actual internal displacement of the tibia upon the astragalus, but even in these cases it seems probable that the displacement was not complete, but that a small portion of the articular surface of the tibia continued to rest upon the astragalus. In neither of these instances was reduction ever accomplished. The cause of this failure I am not able to explain.

If, therefore, we confine ourselves strictly to those cases in which it is certain that the internal dislocation was complete, there remains only the barren and unfortunate record of the three compound luxations; of which one died, and two recovered after amputation.—*Ibid, p.* 88.

52.—OBSERVATIONS ON DR. MARKOE'S REPORT OF CASES OF DISLOCATION OF THE FEMUR, TREATED BY MANIPULATION.

By Dr. W. W. Reid, Rochester, New York.

After describing in detail thirteen of the cases included in his report, Dr. Markoe proceeds to discuss the merits of the mode of operating by manipulation—the rationale of the process—its advantages and its *dangers*. On this latter subject, he observes:

"Every thing in our experience thus far seems to indicate, that this method of reducing luxations is as safe, if not safer, so far as the integrity of the joint and its after usefulness is concerned, than reduction by forcible extension with the pulleys. The method, however, is not without its dangers, and these mainly arise from the immense amount of force which can be exercised by acting on the long arm of so powerful a lever as the whole limb, while the short arm has at most a length of three inches. By the *inconsiderate* or *misdirected* action of this lever force, one of three accidents 'might be produced,' viz:—The muscles might be torn from their attachments—or the surrounding tissues might be lacerated and contused; or lastly," he observes, "it seems to me very possible that the neck of the bone might be broken by too violent abduction, forcing it against the side of the pelvis."

In reply to this it may be observed, that the whole manipulatory process, as proposed by me. is founded on the principle of relaxing and relieving muscles that are already put upon the stretch. This mode of operating is based upon the discovery, or supposed discovery, of the fact, that the distended or stretched condition of the abductor and rotator muscles constitutes the chief impediment to reduction of the dislocation in question, and not the contraction of the extensor and flexor muscles as heretofore taught in all works on Surgery; and that extension applied to the limb by pulleys or otherwise, only increases the distension of the aforesaid abductors and rotators, and consequently, increases the difficulties of reduction, while it greatly enhances the danger of rupturing said muscles, or of fracturing the neck of the femur. But the mode of manipulating as proposed and employed by me, most perfectly avoids all these difficulties and dangers. It is true, that by "*inconsiderate and misdirected action*," accidents may happen. But the same is true of the simplest operations in surgery—even of phlebotomy.

From the experiments and observations which I had made, I had deduced the following propositions and rule:

"1. The chief impediment in the reduction of dislocations is the indirect action of muscles put upon the stretch, by the malposition of the dislocated bone, and not in the contraction of muscles that are shortened, [as heretofore taught].

"2. That muscles are capable of so little extension, beyond their normal length, without hazard of rupture, that no attempt should be made to stretch them further, in order to reduce a dislocation, if it can possibly be avoided.

"3. The general rule for reducing dislocations should be, that the limb or bone should be carried, flexed or drawn in that direction which will relax the distended muscles.

"This general rule will apply to all luxations, but especially to the several varieties that pertain to the hip-joint."

But Dr. Markoe does in fact obviate his own objection, and substantially confirms my own experience, and the principle involved in the foregoing propositions and general rule. He says, "as far as my recollection serves me, and I myself assisted in almost every case reported, *we never have accomplished anything by proceeding in a direction where great force was required* to continue the movement, *but have always succeeded by finding a direction* in which the mere continuance of the movement *without force* has brought the head into the proper position." Hence the importance of studying the anatomy of dislocations—of every kind of dislocation to which each joint is subject, before we proceed to operate by mere brute or mechanical force, regardless of the condition or action of the muscles. Otherwise, any house-carpenter or ship-builder, who knows how to apply a tackle or pulley, might operate just as well as a surgeon. So too, before we operate by manipulation, it is equally important to understand the direction and action of the *dislocated muscles*, as well as the position of the bone, unless we would stultify ourselves and proceed empirically and haphazard, "by making bending movements of the limb in every possible direction," as was recommended by Dorsey.

The method of manipulating, as employed and described by me in the article published in the 'Buffalo Medical Journal' for August, 1851, and again in the proceedings of the State Medical Society, February, 1852, was as follows:—"Let the operator stand or kneel on the injured side, seize the ankle with one hand, the knee with the other, then flex the leg on the thigh, next strongly abduct it, carrying it over the sound one, and at the same time upward over the pelvis, by a kind of semicircular sweep, as high as the umbilicus; *then abduct the knee gently*, turn the toes outwards, the heel inwards, *and carry the foot across the opposite and sound limb, making gentle oscillations of* THE THIGH, when the head of the bone will slip into its socket."

"Gentle oscillations of *the thigh*," while the head of the bone is poised upon a mere point, as before described, and while the foot and leg are directed towards and across the opposite limb, and steadily held in that position, will be found, I apprehend, to be "a procedure that varies [not] a little" from that recommended by Dr. Markoe, viz., a rocking motion of *the leg*, while the thigh is being brought to the straight position *strongly abducted*.

When the thigh is flexed on the trunk, say at an angle of 45°, and is gently abducted, and the head of the bone thus brought close to the lower edge of the acetabulum, if, while gentle oscillations of the thigh are made at the knee, it—the head—does not immediately enter the socket, the knee should be alternately elevated and depressed, thus varying the angle of the thigh. If, by this manœuvre, alternated with the before mentioned oscillating or lateral movement, the head does not enter, we should then cease all motion, and hold the thigh and leg perfectly quiet, for a short period, keeping the former still slightly ab-

ducted; and thus give the irritated muscles, ligaments and tissues time to become quiescent, and to accommodate themselves to the new position of the bone. The foot and leg must be kept still also, and firmly directed towards the opposite thigh, for, if we relax or carry it outward, we shall roll the head of the femur away from its resting place and proximity to the acetabulum, and permit, if not provoke the muscles, as already described, to draw it downward into the foramen ovale or backward into the ischiatic notch or dorsum ilii. After a short time we may repeat our attempts as above described, and in all suitable cases—that is—cases of dislocation on the dorsum or into the ischiatic notch, and of not over four to six weeks' standing, we may confidently anticipate a speedy and favourable issue.

The accidents which occurred during the manipulations of Dr. Markoe and his coadjutors, with the exception of one, in Case 14, were by no means serious; they were in fact discoveries, and afford us valuable lessons and suggestions. It is certainly something new in the annals of surgery, that a surgeon can, at his pleasure, convert any one of the four kinds of dislocation of the hip-joint into any one of another kind. With this additional knowledge, which furnishes us with a choice of position from which to attempt reduction, or, if one fail, to try another, it seems to me, that these heretofore most formidable luxations of the femur may hereafter become, when the modus operandi by manipulation is better understood, quite trivial affairs, and be reduced with as much, if not greater facility, than now obtains in reduction of the shoulder joint.

I feel unwilling to dismiss this subject, without adverting once more to the inapplicability and detrimental action of direct traction on the femur by pulleys, Jarvis' Adjuster, or any other power, for the purpose of reduction of the hip-joint.

I repeat, that traction on the femur is force misapplied—is unphilosophical and absurd, contra-indicated by the anatomy of the dislocated joint, and by the plainest laws of mechanics. This I have attempted to demonstrate in former papers, and shall not dwell on it now, but simply observe, that it seems to me impossible for any one, having the slightest knowledge of anatomy and of mechanical philosophy, to fail to perceive, that extension of the thigh, when dislocated in the dorsum or into the ischiatic notch, must powerfully abduct it, and therefore cause the already distended muscles, especially the obturator externus, to bind the head of the bone more firmly behind the brim of the acetabulum, and thereby prevent its mounting over it, except at the expense of the rupture of muscles, or ligaments, or both. The amount of power exerted by pulleys, Jarvis' Adjuster and similar machines, is unknown. It must be very great, but how great has never been carefully estimated.

The impediments to reduction by direct extension of the femur, I have heretofore considered to lie chiefly in the resistance of the six rotator and abductor muscles, which are put upon the stretch, and

which are incapable of any further extension without danger of rupture. From the experiments which I had made on muscles, I had drawn the conclusion that they were incapable of any practicable degree of elongation beyond their normal lengths, without rupturing them more or less. Since the publication of these views, Professor E. M. Moore informs me that he has been in the practice, during his terms of lecturing on surgery, of exhibiting before the students, on the cadaver, both modes of operation—that is, by extension and by flexion or manipulation—that one of his illustrations consists in removing all the muscles about the hip-joint, then puncturing the capsular ligament, and dislocating the bone on the dorsum. He says, when this is done, the limb always assumes the same position of *abduction* and *inversion* that it does in the living or dead subject, when the muscles are in situ and entire. Having dislocated the bone as above described, he now attempts to reduce, by extension made in the manner recommended by all surgical writers. The extending cord is put into the hands of one or more students, and Dr. Moore says he has always found that the strength of *two men* were necessary to bring the bone into place, although there was nothing to prevent it but the remains of the untorn portion of the capsular ligament, which is stretched across the acetabulum and binds the bone behind its rim. While on the other hand, when reduction was effected by manipulation, no more force was required than was sufficient to support the weight of the limb, to flex and rotate it gently while the head was resting on the edge of the acetabulum ; to do all which required much less than the whole strength of one man. But he observes, that the head never enters the socket, even under these favourable circumstances, without tearing up another portion, more or less, of the capsular ligament from its attachment at the edge of the acetabulum. He states, moreover, a fact, which I had myself before observed, that when the muscles about the joint are entire, if the femur is flexed on the trunk and abducted, the glutei muscles are stretched, and then their broad tendons compress the trochanter, and powerfully assist rotation and abduction, to urge the head of the bone into the socket ; very much as might be done by the hands, if placed over the trochanter, but much more efficiently. But if the thigh is brought down to a right angle or lower, the tendons of the glutei are relaxed, and we thereby lose all the advantage which they would otherwise afford us—another cogent reason for not bringing down the limb towards the straight position, before the head enters the socket.

The experiments which I had made for the purpose of determining the extensibility of muscles, were made on those of sheep, which had been killed from one to two days—that is, on the dead, but still fresh muscle. Soon after I had made known the results and my views, Drs. Bly and Moore performed a series of experiments on the living muscle, viz. : of wethers two years old. The animal was suspended in strong canvass cloth, with one fore leg projecting through a hole,

rendered unyielding by firmly binding or hemming the edge. The skin was removed from the knee, for the space of six inches. The ligaments of the joint only were divided, the muscles being left intact; weights were suspended from the foot, and added by degrees, fourteen pounds at a time. Four different experiments were made on as many different animals, with very nearly the same results. The following tabular view of the fourth experiment will explain the whole :—

No. of lbs.	32scds. in.	No. of lbs.	32scds. in.	Remarks.
9	2	163	13*	The second and fourth columns show the distances in thirty-two second parts of an inch, to which the articulating surfaces were separated on each addition of fourteen lbs.
23	4	177	14	
37	5	201	14*	
51	6	215	15	
65	7	229	15*	
79	8	243	16	
93	9	257	16*	
107	10	271	17	
121	11	285	17*	
135	12	299	18	
149	13	313	18*	
		327	18½	

* Thirty-two seconds of an inch, or about five-eighths.

After two hundred and forty-three pounds had been added, the whole were removed, when the parts regained their normal position. After these had been replaced, and more added, sixty pounds were removed at a time, the parts always regaining what they had lost by the addition of that number of pounds. But when three hundred and twenty-seven had been reached, the leg of the living sheep was completely torn off at the shoulder joint. This happened in every instance, with a weight not varying over fifteen pounds from three hundred and thirty, being sometimes less, sometimes greater. This rupture always took place at the shoulder, never at the knee, although the ligaments of the latter were divided, while those of the former were entire. From these experiments it will be seen that the living muscles were extended about five-eighths of an inch beyond their normal length, and regained or contracted to their original position. But Dr. Bly acknowledges that the joint was not very firm ; that the muscles seemed rather lax. The results of his experiments compared with those of mine are so diametrically opposite, it is evident that one or the other must be in error—that, contrary to my conclusions, muscles must be elastic, and capable of extension beyond their normal length—and if so, then the distended muscles of a dislocation constitute, not the primary but the secondary impediments to reduction, while the ligaments constitute the primary and chief. This subject needs further investigation by others, who have more ample facilities.

One word on the use of ether and chloroform in reduction of luxations. Believing, as I do, that muscles are the principal agents in producing dislocations, while the blow received is but secondary—that is, that the muscles being in a state of active contraction by force of the will, at that instant a sudden blow, taking the will by surprise, is received on the limb, and propelling it in the same direction which the contracting muscles are giving it, the bone is thrown out of place before the opposing muscles have time to resist this new impulse. I am therefore constrained to believe, also, that muscles may be made, and are, in fact, our most efficient assistants in reducing by manipulation. Consequently "etherization to the extent of complete relaxation," instead of being an advantage, is a detriment, in just so far as it prevents the contraction of the muscles required to replace the bone. Might not this have been one of the causes of so many unsuccessful attempts at reduction, which are narrated in the report of Dr. Markoe? Etherization was employed in every case reported as occurring in the Hospital, except No. 5, and that was the only one which was reduced without difficulty or mishap. The pain produced by manipulation is too trifling to require an anæsthetic of any kind. These remarks, of course, are not intended to apply to cases of luxations complicated with other severe or painful injuries, nor to reduction by forcible traction or mechanical means.

Before concluding, I beg permission to express my acknowledgments to the New York surgeons, for the complimentary manner in which they have been pleased to speak of my efforts to introduce to the notice of the profession, this mode of reducing dislocation of the femur. It is not only gratifying to me, but honourable in them, and will doubtless be duly appreciated by the profession generally, that they have, in the spirit of true philosophy, undertaken an investigation, which the importance of the subject demanded, and have thus, by their more ample facilities and experience, put to the test, and in a good degree have established, the merits and advantages of this mode of operating. Especially is it honourable in them, when it is evident, that in certain quarters the whole thing is ignored, and there is manifested a spirit of conservatism quite as absurd as that of some forms of radicalism. And that, too, where the operators could not plead ignorance of the facts and proofs that have been adduced in favour of the method. With such men nothing good can come out of Nazareth. The world composed of such only would remain for ever *in statu quo*. The discovery of new truths, advancement in science and progress in the arts would come to an end. "The wisdom of the world would die with them."—*N. Y. Journal of Medicine, July, 1855, p. 56.*

53.—DISLOCATIONS OF THE HEAD OF THE FEMUR REDUCED BY MANUAL EXTENSION, FLEXION, AND ROTATION.

By John Birkett, Esq., Assistant Surgeon to Guy's Hospital.

Dr. Reid, of New York, gives an American plan of reduction in cases of dislocation of the head of the thigh-bone; and Dr. Markoe, one of the attending surgeons of the chief New York Hospital, has recently furnished nine cases of his own, and three others treated by New York surgeons, twelve cases in all, of which three were dislocations into the foramen ovale, eight (five of his own and three others) on the dosum ilii, and one into the ischiatic notch. We do not hear of the luxation on the horizontal branch of the os pubis, or the still more rare accident behind the tuberosity of the ischium. The method of the American surgeons is much more violent, and not more effective, than that adopted at Guy's and at some other London hospitals, the displacement being remedied according to the former, "by flexing the leg on the thigh, carrying the thigh over the sound one, upwards over the pelvis, as high as the umbilicus, and then abducting and rotating it." A peculiar "rocking motion" is much dwelt on, however, by our Transatlantic brethren, as necessary to induce the head of the bone to regain or creep back to its normal position,—a plan spoken of by Colombat,—an old modification of the present methods by manipulation is also now highly prized by some surgeons; but we doubt if, under chloroform, the patient could be so well adapted to it as to the plan of Mr. Cock and Mr. Birkett at Guy's, which seems to answer all purposes. The principle, however, of flexion and extension is the same. The patient with dislocated hip stands at a table, according to Colombat, then leans forward with his chest upon the table, while the surgeon stands behind and bends the knee with one hand, manipulating at the same time and encouraging the various movements of the hip-joint, in accordance with the plan by chloroform in Mr. Cock's cases, making gradual extension by pulling downwards. By this modification of the older plan, assisted by the gravity of the limb in place of chloroform, the head of the bone may be dislodged, and its reduction safely accomplished; perhaps this method is worthy of being recollected where the patient will not bear chloroform. One of the American cases as reduced by Reid's plan, presented the curious characteristic of the head of the bone "seeming to move about more freely in all directions," and dislocated in several ways at the will of the patient; in another of the cases the luxation occurred into the ischiatic notch, the limb shortened as usual; but the effect of the treatment was to throw the head of the bone on the obturator foramen, between which points the limb could be got to play backwards and forwards, not into the socket, but under the rim of the acetabulum.

With these few preliminary remarks, as the subject is one of an

eminently practical nature, and as the plan seems to answer in old cases of even several weeks' standing, we give the following as various and well-marked dislocations of the head of the thigh-bone at Guy's, reduced, under the influence of chloroform, by manual extension, flexion, and rotation. It is often asked why dislocation of the thigh is so frequent on the dorsum ilii and ischiatic notch. This is caused by the strong ileo-femoral or accessory ligament we spoke of before in Mr. Cock's case, preventing dislocation in front, and all along the border of capsule attached to the inter-trochanteric line; the head of the bone unattached posteriorly. Some of the cases are recent; but it will be remarked we gave one before of five weeks' standing readily cured.

Case 1.—*Dislocation into the Foramen Ovale.*—In February, 1848, a rather slightly made young woman, whilst stepping from a cab in motion, fell to the ground. The accident happened about eighteen hours before Mr. Birkett saw her. She was at the time of the receipt of the injury slightly under the influence of wine or spirits. The axis of the limb, and other well-marked indications, were diagnostic of the site of the head of the femur, which was the foramen ovale. Chloroform having been administered, a round towel was adjusted in a clove-hitch knot around the thigh close above the knee, and extension was made by means of this towel by the dresser in a line parallel with the central axis of the body, his heel having been placed against the head of the femur in the region of the foramen ovale. Immediately that all muscular irritability ceased, the dresser made extension, Mr. Birkett slightly rotated the limb, and the head of the femur was replaced in the acetabulum. The reduction of the dislocation was accompanied with a slight jerk.

Case 2.—*Dislocation on the Dorsum Ilii.*—A woman, aged 45, had been the subject of repeated dislocations of the head of the thigh bone, this occasion being the twenty-second! The head of the femur could be readily felt upon the dorsum ilii, and the other indications of this dislocation were all well marked, such as shortness of the limb, the inverted toe on opposite ankle, &c. Chloroform was administered, and the dresser, Mr. Madge, placing his heel and foot against the pubis, and grasping the limb just above the ankle, made direct extension and gentle rotation outwards. In less than a minute reduction of the dislocation was accomplished. This patient expressed herself highly delighted with the method adopted, for she had been subjected about once a year for the last twenty years to the old plans, with their attendant pains and draggings.

Case 3.—*Dislocation on the Dorsum Ilii.*—A woman, aged 29, strong, and in good health, fell from a window to the ground. Mr. Birkett saw her about two hours after the accident, when every indication existed of the head of the left femur being situated upon the dorsum of the ilium. Chloroform was administered, a round towel was adjusted close above the knee, and the dresser, Mr. Newnham,

made direct extension therewith, his foot being placed against the pubis. In this instance, immediately all muscular contraction ceased, the head of the thigh-bone was heard to enter the acetabulum with a noise, accompanied by a violent jerk.

Case 4.—*Dislocation into the Ischiatic Notch.*—A very strong, muscular, healthy, and active "long-shore" man, was admitted into Guy's Hospital in the winter. He had fallen a few hours before, and Mr. Birkett immediately saw that the head of the right thigh-bone was in the ischiatic notch. The man was placed under the influence of chloroform, and the dresser placing his foot against the pubis, was assisted by a student in making extension therefrom. The limb was in this case directed slightly outwards. Within a minute after complete muscular inaction had been established, the head of the thigh-bone was placed in the acetabulum unknown to the bystanders and those effecting the reduction.—*Lancet, Aug.* 4, 1855, *p.* 105.

54.—*Reduction of a Dislocated Femur without Extension.* By E. Cock, Esq., Surgeon to Guy's Hospital.—We have repeatedly, of late years, called the attention of our readers to the plan now generally adopted for the reduction of dislocations of the thigh bone, which accomplishes its end without resort to any form of extending force. To dispense entirely with the cumbrous mechanism usually advised in surgical works is, doubtless, no small advantage in favour of the modern plan. It is one also which will be particularly appreciated by surgeons living in country districts, to whom such cases are liable to happen at times, when the whole armamenta may not chance to be at hand. But not only is the flexion plan superior to the extension one in being attended by almost no trouble, and requiring no apparatus; it is more efficient. In proof of this last assertion, let us cite the following case:—On Monday last, a muscular labourer, aged 23, was admitted into Guy's Hospital, under the care of Mr. Cock, on account of a dislocation of the left femur, on to the dorsum. In Mr. Cock's absence, the reduction was commenced in the ordinary way, about four hours having elapsed between the accident and the attempt. We should here state that the dislocation was an extremely well characterized one. Chloroform was administered, and for upwards of an hour the most energetic attempts were made, by means of manual traction, to effect replacement. Pulleys were not employed, but the united force of the six assistants who undertook the extension must have been equivalent to any degree of mechanical power which could wisely have been resorted to. The attempt failed, and it was at length deemed necessary to desist. On the following morning Mr. Cock undertook the case. The man was taken into the operating-theatre, placed in position, and, the pulleys being in readiness in case of need, chloroform was given. As soon as complete insensibility had come on, Mr. Cock took the thigh, flexed it on the pelvis, bent it outwards, and made a

slight rotatory movement, when the head of the bone slipped into its socket. The reduction did not take half a minute, and was accomplished without the apparent application of any force.

With regard to the direction in which it is necessary to apply force in reduction without extension, it may be concisely indicated in the formula—lift up, bend out, roll in. The thigh is to be flexed on the pelvis, and the operator, taking hold of the patient's knee, is to bend it outwards away from the axis of the body. In that position a slight rotatory movement is to be accomplished, and the head of the bone will slip into place. The explanation of the success of these movements will be apparent to any one who is familiar with the relative positions of the parts implicated. Movements modified according to the different positions taken by the femur, and which will readily suggest themselves to those possessing anatomical knowledge, are equally effectual with the other varieties of dislocation at the hip. One principle is that the femur is made to constitute a powerful lever in the hands of the operator, and it may be well to remark that, in cases in which the length of leverage may not seem sufficient, the difficulty will be at once met by using the whole limb, and grasping the foot instead of the knee.—*Med. Times and Gazette, June* 30, 1855, *p.* 644.

55.—CASE OF COMPLETE DISLOCATION OF THE LOWER JAW.

By W. Colles, Esq., Surgeon to Stevens' Hospital, Dublin.

[A young lady, aged 25, while yawning, felt a jerk in the jaw, and found that she could not close her mouth. She applied to a medical man, who recognized a dislocation, but failed in his efforts at reduction. She then applied to Mr. Colles about three hours afterwards, who says :]

Before attempting reduction, I wished to ascertain the position in which I should have most command of the force to be used. Standing before her I passed both thumbs into the mouth, but felt I would not have a position the most favourable for applying all my force if necessary.

I then stood behind her, and it at once struck me this was the position which afforded most advantages.

Placing her head against my chest, I passed each thumb as far back on the corresponding side of the jaw as possible : by making a rotatory motion from the wrist I found the bone to yield ; by now adding a motion of drawing the hand in towards the chest, the left side first, then the right, slipped into their positions, and the patient closed the mouth, the rows of teeth falling into their relative positions, and she now could speak plainly.

I think there are many advantages to be derived from attempting reduction in this posture, viz., the surgeon standing behind the

patient, the head applied to his breast, and the thumbs turned inwards on the corresponding angles of the jaw, the fingers under the bone in front.

In the first place, the head is much more secure than in the original process, where it is applied against a wall, because in the latter the surgeon may press down the bone, and the patient generally will draw the head in the same direction by moving the body forward in the chair.

By standing behind the patient, while depressing and pushing back the thumbs, he is pressing forwards with the chest, and thus fixes the head more steadily and assists his manipulations, and even if the patient do move on the chair, a slight motion of his body will suffice to counteract this movement, and retain the head steadily fixed.

Another advantage is, that he can use much more force, because when standing in front he can only use the muscles that depress the hands; the power of these muscles, and is assisted by the powerful class of muscles that rotate the thumbs inwardly; and, besides, in the former case his pressure is away from his body, whereas in the new position the pressure is more directly downwards and towards himself. The only disadvantage in this proceeding, if it can be considered one, is that the mouth is stretched more than in the original plan.

I know this proceeding may, to many, appear awkward and insufficient; but I would only request the surgeon having such a dislocation to treat, before proceeding to reduction, to do as I did—place himself in both positions, and I have no doubt he will feel convinced that the position in which he can use most force and most advantageously, and also have the motions of the head more under his control, is when he stands behind the patient, and proceeds as above recommended.—*Dublin Hospital Gazette*, *July* 15, 1855, *p.* 177.

56.—THE MODERN TREATMENT OF FRACTURES.

By Benjamin Hunt, Esq., Surgeon to the General Dispensary, Birmingham.

[A young man, aged 19, a bricklayer, was engaged building the second story of a house, when the scaffold gave way, and he fell to the ground. On being taken to the hospital, the femur was found to be fractured transversely, immediately above the condyles, the upper portion projecting in front, and the lower portion behind. Reduction was easily effected before he had recovered from the shock.]

The limb was immediately bandaged firmly, beginning at the foot and ending at the crest of the ilium, with many turns over the left hip and buttock, so as to cover them as much as possible by what is called the spica bandage. A thick solution of starch was next laid on; then the millboard splints; over these more starch; and, lastly, more ban-

dage, exactly similar to the former in extent and method of application. The whole process occupied forty minutes in execution, with the aid of two assistants.

The millboard splints consisted of two for the leg and four for the thigh: those for the leg were applied, one on the outer and the other on the inner side, including the foot, and extending upwards to the head of the tibia and fibula. Their width opposite the calf should not be more than a hand's breadth, and at the ankle not wider than the tips of three fingers: they should turn over on to the dorsum and sole of the foot about an inch, and should not encroach upon the metacarpal joints of either great or little toe, nor upon the back of the heel. Those for the thigh were about four inches wide, and consisted of an outer and inner, and anterior and posterior. Of the two former, one reached from the perineum, the other from the crista ilii, to three inches below the knee, overlapping those on the leg: the posterior extended also from the crista ilii to the calf of the leg; the anterior, from the groin to the upper margin of the patella.

It will be observed, that no padding to protect the skin over the bony prominences from the pressure of the millboard splints was made use of; the necessity for such being obviated by careful adaptation of the apparatus: for example, in bandaging the limb, the roller should be laid on evenly with as few reverses as possible; the starch should not be lumpy; the millboard must be well soaked, and moulded accurately to the subjacent surface; and their edges made thin by scraping. The absence of padding gives the apparatus a more symmetrical appearance, and allows a more even pressure to be exerted over the whole limb. It was supposed that the pressure of the apparatus when dry against the bone would cause sloughing of the intervening skin, but experience has proved otherwise.

The sensation experienced by the patient, directly after the apparatus was put on, in this and most cases, was a numbness of the limb, which passed off in a few hours. This man was kept as motionless as possible for forty-eight hours; the apparatus was then cut up from the toes to the groin, along the anterior surface of the limb; the fragments were in good position; a fold of lint was inserted between the limb and the case, where, from the subsidence of swelling, an interval existed: the case was reclosed, and its edges kept together by bandaging from the foot to the groin; and, by smearing the surface with starch, slipping of the bandage was provided against, and the solidity of the apparatus rendered complete. This superficial coating of starch dried in a few hours; and then he was allowed to go about on crutches, supporting the injured limb with a sling from his neck to his foot.

From this time, the third day after admission, until his discharge at the expiration of six weeks, he never kept his bed for a single day, and required no attention from me during that time.

On the morning he left the hospital, I examined his limb; it was

of the same length as its fellow; the muscles were rather shrunken; and the knee-joint very stiff. The fracture had firmly united, without any deformity of the bone: the only indication of the seat of injury was some thickening just above the knee-joint. During the last fortnight, he had discontinued the use of the sling, employing his limb in progression with the aid of crutches; and, to give freedom to the ankle and hip joints, for this purpose, the apparatus had been slit up at the dorsum of the foot, and at the groin. In the present instance, a simple bandage was put on; and he soon regained sufficient use of his limb to enable him to walk with a stick.

I saw him four months afterwards. He was then at work, and had entirely regained the use of the knee and the full development of the muscles.

Remarks. Taking the age of this man and the position of the fracture into consideration, together with the very favourable recovery, I think we may fairly suspect the injury to be a separation of the epiphyses from the shaft; and this suspicion is strengthened by the amount of swelling immediately following the injury. Distinct crepitus was felt after the displaced fragments had been brought into apposition. Be the injury either fracture or diastasis, the disturbing influences are the same; muscular action had to be controlled in either case; and this was effected by fixing the neighbouring joints, and exerting such pressure upon the muscles themselves as would prevent their contraction.

Case.—Thomas Coyle, aged 56, a bricklayer, was admitted into the Queen's Hospital on Nov. 2, 1853, having, a short time before, sustained a fracture of his left thigh, and of the radius of his left arm. He fell backwards from a ladder while in the act of ascending it with a bucket of water in his left hand, and came to the ground, the distance been about fifteen feet. When seen, he was suffering severely from the shock, and complained of much pain in the left shoulder, wrist, and thigh. The shoulder and side of his chest were contused, but not otherwise injured. Immediately above the wrist, on the palmar aspect of the forearm, there was a considerable prominence; and on the dorsal surface, one inch above the carpus, a depression, most marked towards the radial border: the fingers were partly flexed. By grasping the hand, and making extension, the deformity was greatly lessened; and, by rotating it at the same time, distinct grating, one inch above the wrist, could be felt, leaving no room to doubt that the radius was fractured at this spot. When extension was discontinued, the deformity returned; the upper fragment projecting forwards, the lower backwards.

The treatment adopted in this case was that recommended by Dupuytren; the forearm being midway between pronation and supination, the hand was adducted by drawing it downwards over the extremity of the ulna. To maintain it in this position, a curved wooden splint was applied to the dorsal surface of the forearm,

reaching from the outer condyle to the ends of the fingers; and a well-padded straight splint on the palmar aspect, from the wrist to the bend of the arm. Although great care was taken to prevent displacement of the fragments, still, at the end of the third week, when the splints were finally removed, some deformity remained, with inability to flex the fingers; and it was many weeks before he regained the use of his hand.

The femur was broken at the junction of the upper and middle thirds; the superior fragment was tilted forward; the lower was drawn upwards, and could not be felt amongst the muscles; the limb was everted and shortened, the left heel being on a level with the inner malleolus of the right leg. The patient was a healthy-looking man, but of an irritable and anxious disposition. The treatment consisted in applying an apparatus similar to what has been described in the preceding case, with the addition of a wooden splint outside the appa atus, reaching from the axilla to the foot, to prevent him from moving until the apparatus had become dry.

On the third day, the wooden splint was dispensed with; and then the apparatus was cut open with a pair of stout curved scissors, along the sole and dorsum of the foot, up the anterior of the leg and thigh to the groin. The limb was then inspected; one-half of the apparatus only being drawn aside from the limb, while an assistant with both hands kept the other firmly applied. The examination of this side having been completed, this half of the apparatus was replaced, and made to serve the purpose of the other, while that was withdrawn to permit a like inspection of the other side. The patient had complained of pain at the knee, which was found to proceed from pressure upon the patella by a portion of the millboard splint, which being removed gave relief. The upper fragment also appeared to be somewhat tilted forward, probably since the apparatus was opened; but, to make sure of the ends being approximated, a broad pad of lint was laid along the thigh, in the course of the superior portion of the bone. The apparatus was then closed, and firmly bandaged over; after which a light coating of starch was laid on: the apparatus was then perfect. He might, without apprehension of mischief, be lifted about from one couch to another; or, if needful, have taken a journey. The injured limb was so packed as to be perfectly immovable within its case.

This poor man suffered severely from the effects of the fall, having a sharp attack of inflammatory fever for several days, accompanied by a most troublesome cough. The contusions of the shoulder and chest gave him much uneasiness; so that it was not until the third week that he was permitted to be dressed and placed on a bed by the fire. He was unable to go upon crutches, because of the injury to the left wrist. At the sixth week, he contrived, by having the apparatus cut so as to set his ankle and hip joints at liberty, to get about with the aid of a crutch and stick; and, when discharged from the hospital, a

fortnight afterwards, he merely wore a part of the apparatus about his thigh, and walked with a stick only.

Case.—G. Wilkinson, aged 26, employed on the railway, was admitted into the Queen's Hospital at 3 A.M. on October 8th, 1853, having a short time previously sustained a compound fracture of his right thigh; he was getting over a boarded fence five or six feet high, on the other side of which an excavation several feet in depth had been made unawares to him, and which, from the darkness of the night, he did not discern; instead, therefore, of alighting upon the ground, level, as he supposed, with the opposite side, he fell with much violence to the bottom of the cutting, and upon attempting to rise, found he had injured his right thigh.

When brought to the hospital, he was suffering greatly from shock; his trousers were torn and bloody; opposite the rent could be seen a wound an inch and a half long, rather above the middle of the thigh, on its outer side: as he lay upon his back, the limb was found to be three inches shorter than the other, and everted. The femur was fractured at the junction of its upper and middle thirds; the superior fragment was tilted forwards, the inferior drawn upwards. By extension, the limb was restored to its natural length, and by pressing down the upper fragment, coaptation was readily effected; it was now seen that the wound led directly to the fracture. The long splint was temporarily applied, the wound having been first cleansed from blood and dirt, and its edges approximated by plaster. A few hours afterwards, the system having rallied from the shock without hemorrhage coming on, the long splint was carefully removed, extension being kept up by an assistant, and the apparatus was applied as described in the first case here related.

On the second day, the limb was examined: the edges of the wound had adhered, the thigh was not much swollen, and the fragments of the bone were in apposition. The apparatus, which had been cut open to allow inspection of the limb, was most carefully reclosed, and the patient ordered to keep as quiet as possible.

He went on well—that is to say, without pain or any febrile disturbance—until the ninth day, when these symptoms, with rigors, were present. The limb was examined, and found to be somewhat swollen at the seat of injury, while skin around the wound was reddened; an opening, four inches square, was made in the apparatus, to permit inspection of the wound, and the application of poultices without disturbing the limb. Suppuration soon followed; the wound opened, and discharged much ill-conditioned purulent matter for several days; after which, the discharge became less in quantity and more healthy in character. The bone could now be felt with a probe denuded of its periosteum for some extent; but as the patient improved in strength, and the limb was so completely supported by the apparatus that he could be moved in and out of bed without disturbing the fracture. it was hoped that exfoliation might take place, and the wound ultimately

heal. This hope was not to be fulfilled: the man did well for a time, but fresh abscesses formed, hectic fever set in, and amputation became imperative. The limb was removed after the circular method by Mr. Sands Cox, exactly two months from the occurrence of the accident, the man ultimately recovering.

Remarks. The utility of the apparatus for the fractured thigh was in this case most remarkable; for during the two months an endeavour was made to save the limb, the patient could be moved without suffering any pain or inconvenience; the wound could be dressed as often as required without any disturbance of the fragments; and although the apparatus was worn until the limb was brought to the operation table for amputation, yet it was neither shortened, deformed, nor excoriated. In fact, the treatment adopted fulfilled all the indications necessary for the reunion of bone under ordinary circumstances, and therefore the want of success must be attributed to the severity of the injury and the weak constitution of the patient. It was afterwards found that an inch and a half of the entire thickness of the lower shaft was necrosed, and that the process of separation had commenced, while in the surrounding structures formed the walls of a large cavity lined by a thick pyogenic membrane.—*Association Med. Journal, July* 6, 1855, *p.* 622.

57.—TREATMENT OF CONTRACTIONS FROM RHEUMATISM AND OLD CASES OF ANCHYLOSIS.

By John Erichsen, Esq., Surgeon to University College Hospital.

[Five cases of this kind have lately been under Mr. Erichsen's care at University College Hospital, and illustrate well the resources opened up by chloroform.]

These cases, under treatment at different times, have been the result of chronic inflammatory disease of the knee-joint; in all of them the leg was bent on the thigh to different degrees, varying from a right to a more or less acute angle; in none of the cases could the patients put the foot to the ground or use it in progression. The plan of treatment adopted by Mr. Erichsen is, to place the patient fully under the effects of chloroform, so as to relax the muscles of the limb, and render the patient insensible to the pain of the operation; then, as the lesser evil of the two, forcibly to straighten or extend the bent-up leg. In doing this, we noticed on more than one occasion loud snaps or cracks in the joint—not a little alarming at first, though without danger—as the false membranes within and ligamentous structures outside the joint were broken through. The extended limb is then put up in a straight splint, evaporating ether lotions applied, and the patient kept quiet. Generally this plan suffices to straighten the limb, but in some very obstinate instances division of the hamstring tendons is required; this, however, Mr. Erichsen finds

it rarely necessary to employ, only one of the five following cases requiring it.

Case 1.—A young woman, aged twenty-two, who had been attacked April, 1855, with acute rheumatism and rheumatic contraction of the left knee, the latter bent at nearly a right angle and excessively painful, came under Mr. Erichsen's care, who succeeded in straightening the limb under chloroform. The subsequent inflammation was easily reduced by leeches and slight mercurials. She appears latterly quite well, and wears the starch bandage. She would not allow the limb even to be touched previous to the use of the chloroform.

Case 2.—A man, aged twenty-three, came under care in July, with contraction of his left knee, which was bent at right angles, and had been in this condition for eight months, the result of inflammation of the joint. There was no pain or uneasiness about it; very limited motion, not more than about two inches when he attempted to move the foot. Mr. Erichsen had him placed under the influence of chloroform, and then forcibly stretched the limb: loud crackling noises were heard as if something were being crunched or torn through. There were no inflammatory symptoms subsequently; and he was able to leave the hospital in ten days, merely wearing starch bandages.

Case 3.—A woman, aged thirty: anchylosis nearly complete of the left knee for nine months, consequent on rheumatism; scarcely any motion in the joint; no pain or tenderness. The limb here also was straightened, or forcibly extended, under the influence of chloroform. The extension was attended with loud snapping or crackling of the old adhesions. Some severe inflammatory action followed, which, however, was easily subdued by evaporating lotions. This woman also had starch bandages applied; and left the hospital quite improved in health.

Case 4.—A woman, aged forty-two, whom we saw operated on early last month. She complained of anchylosis of the knee, with bent or twisted condition of the fore-arm and hand, all the result of rheumatic inflammation contracted two years since. Mr. Erichsen straightened the limbs as usual under chloroform; though at first he believed that he should have had recourse to division of the tendons. Loud crunching sounds were heard, as in the former cases. This case has also done well.

Case 5.—This was an instance of anchylosis of the left knee, in a female, aged thirty-two, of not less than sixteen years' standing, during the whole of which period the limb had not been put to the ground. The leg was considerably wasted, though nearly as long as the healthy limb; it was bent nearly at a right angle; the hamstring tendons were very tense. Mr. Erichsen having placed the patient under chloroform, divided these tendons, and then forcibly straightened the limb, tearing down, apparently to us, several old adhesions, in and around the joint. No inflammatory action supervened; and this limb is now in a straight position, supported by starch and gum bandages.

These cases may not claim any superiority over many others of a like kind by their originality, yet they are deserving of notice for their practical value.—*Lancet, August* 18, 1855, *p.* 145.

58.—*Application of Cold to Sprains.*—Many different opinions have been entertained as to whether recent sprains should be treated by warm or cold applications. We find that Mr. Cock, of Guy's Hospital, entertains, as the result of his large experience, a very strong preference for cold. He states that the consequences of a sprain may be very much limited, both in duration and severity, by the early and efficient employment of cold. It should either be done by iced water, or by irrigation. Mr. Cock is accustomed to quote, by way of illustration of the powers of cold, the certainty with which the application of ice will induce the absorption of effused blood in an ordinary ecchymosis, a power which, by the way, in certain cases of "black eye" may be turned to good account.—*Med. Times and Gaz., July* 21, 1855, *p.* 63.

ORGANS OF CIRCULATION.

59.—REMARKABLE CASE OF SUBCLAVIAN ANEURISM; NEW METHOD OF TREATMENT.

By Prof. Fergusson, F.R.S., Surgeon to King's College Hospital.

[Since the researches and cases of Dr. Kirkes, it seems generally conceded that small fibrinous clots may be transmitted from one part of the circulating current to another; endocardial fibrinous deposits may pass from the heart after inflammation into some of the branches of the aorta, producing complete obturation of the vessel beyond that part. The surgical application of this will be seen to be very important.]

Mr. Fergusson presented to his class on the 4th of August a most interesting case—one of a series, as we subsequently learned—where a very remarkable cure has been effected in well-marked subclavian aneurism, by a new and specific method of manipulation which he has adopted. We may state here that we saw the case about a year and a half ago also, when the man was previously under treatment. Some short period before that time Mr. Fergusson conceived the plan of stopping the circulation in the aneurism by pressing the sides of the aneurismal sac together, with their intervening fibrinous deposit; and in this case, from the phenomena attending the manipulation, there appeared to us very little doubt that the object held in view by Mr. Fergusson had been attained—viz., the clots of fibrin in layers in the aneurismal sac had been displaced, and, spreading from the subclavian into the axillary and brachial, a new sort of Brasdor's operation, at the

distal side of the subclavian had been the result. In other words, we believe Mr. Fergusson here, without ligature, had attained all the advantages of the last-named operative proceeding; for not only had a blocking-up of the axillary and brachial been followed by a partial stoppage of the current through the enlarged aneurism of the subclavian, but even with very marked, but not so satisfactory, results as regarded the pulse in the radial at the wrist, which became completely stopped for a time, with symptoms of paralysis in the arm, all resulting from the displacement of the fibrinous clots.

The aneurism in the present case was situated in the subclavian, in the usual site of subclavian aneurism—namely, between the scaleni muscles, and to us seemed almost to invite some modification of the Dublin surgeons' plan by compression on the first rib. The plan by compression, we need hardly observe, is in general applied to the artery above the aneurism, between the latter and the heart. Crampton, however, in 1816, showed that the obliteration of an artery can be effected without rupture or ligature of its coats, as generally conceived, simply by this blocking-up process. The early volumes of 'The Lancet' contain cases also cured by Brasdor's operation; it seems, however, more applicable to carotid than subclavian aneurism.

Mr. Fergusson related to his class on the 11th, at some length, the details of a previous case of subclavian aneurism, of the same character as the present, in which his ideas on this subject were first matured. In both cases the method of cure by deligation at the tracheal side of the scaleni, as well as Brasdor's operation at the distal end of the aneurism, were inadmissible; yet it was gratifying to find the present plan, by firm pressure of the thumb on the aneurism, so as to displace some of the fibrinous clots, followed up by local pressure, succeeded in obtaining most striking and in many respects curious but satisfactory results. Intimately associated as the subclavian is at the right side with the vertebrals and carotid, the method of displacing fibrinous coagula is not without danger. A patient under such circumstances will fall down perhaps in a fit from want of circulation in one side of the "circle of Willis," formed by these arteries; yet, as the cause is so apparent, the danger may not be very alarming. Some instances of cure of aneurism of even the innominata have been given by American surgeons, in which recourse was had to ligature on Brasdor's plan of the subclavian; the result here ought to be equally dangerous. Hodgson gives us cases also in which a plug of effused lymph had nearly obliterated the subclavian; while Gendrin has imitated all the phenomena of arteritis and blocking up of aneurisms by injecting irritant substances into a portion of artery contained between two ligatures. In Mr. Fergusson's new mode of operation, we believe an entirely novel idea is acted on—namely, the displacement of the lamellated fibrin of the aneurism, on which no operation has been performed, and so directing the clots of fibrin that they shall block up the

distal end of the artery so diseased. As Mr. Fergusson has expressed an intention of bringing the entire subject under the notice of the Medico-Chirurgical Society, we purposely abstain from giving the cases in detail. The method of treating aneurism by compression, originating with Desault and Hunter, and recently revived with such excellent results by the Dublin surgeons, will gain an immense accession of interest, if it should prove that the fibrinous deposit of the sac of the aneurism may be thus as it were utilized in bringing about the results hitherto gained in a different mode by Brasdor's operation at the distal end of the aneurism. Considerable caution will be at first necessary, as observed by Mr. Fergusson, in selecting cases which are fitted for the present method, as premature or ill-judged experiments in the shape of direct pressure or manipulation on the sac of aneurism not requiring it, one of which we mentioned recently as brought into Guy's, where direct and prolonged pressure had been made in the popliteal space before the patient came into hospital would be certain to be followed by severe inflammation of the sac and other dangerous results. The spontaneous cure of aneurism is not unknown in practice; it may take place, it must not be forgotten, by a coagulation of the contents or increase of the quantity of lamellated blood in the sac, the cavity becoming filled, and the circulation conveyed to the parts beyond the disease by the collateral vessels; or, again, in some rare cases the aneurismal tumour may be doubled up and press upon the portion of artery leading directly to the aneurism; or in a third fashion, as in a remarkable case given by Mr. Liston, where the patient had well-marked subclavian aneurism, which subsided and disappeared—an aneurism of the innominata pressing on and obliterating the aneurism of the subclavian!

Whatever may prove to be the correct pathological explanation of the phenomena in Mr. Fergusson's present cases, we deem it our duty to state here briefly that the cure seems complete and unequivocal without any ligature of vessels, nor is there any reason to believe the case was one of spontaneous cure of subclavian aneurism, as in the case given by Mr. Liston. It is now two years since the man came first under observation; he has been, on and off, under treatment all that time in King's College Hospital and at home in the country; but happening to be in town within the last fortnight, Mr. Fergusson took advantage of the opportunity to exhibit the case to his class.—*Lancet, Sep.* 1, 1855, *p.* 197.

60.—ON THE TREATMENT OF WOUNDS OF THE PALMAR ARCH.

By Dr. Charles D. Arnott, Gorleston, Great Yarmouth.

[This is a subject of great interest to the practitioner, and demands measures at once prompt and effective. The most important feature

in the treatment is the arrest of hemorrhage. Formerly surgical hæmostatics, as pressure, or the actual cautery, were used for this purpose; these have now given place to the ligature. This, although so simple, safe, and effective, yet requires considerable anatomical knowledge and manual dexterity, or occasionally it may be followed by disasters of a most formidable character.]

Let us briefly consider the special subject of hemorrhage from wounds of the palmar arch.

In primary hemorrhage occurring briskly and *per saltum*, the obvious surgical principle is to search out and secure the bleeding point, or points, by ligature. This is, in the generality of cases, easy, in almost all, effectual. Should moderate exploration fail to discover the bleeding vessel, the hemorrhage is completely controllable by properly adjusted pressure. In secondary hemorrhage, occurring, it may be, after the lapse of days, exploration for the wounded vessel, or vessels, is unlikely to prove successful, and should not be attempted. Pressure judiciously and properly applied, will be found quite effectual. The principle I wish to inculcate is, that under no circumstances, in hemorrhage from the palm, is deligation of the arterial trunks on the cardiac aspect to be deemed necessary or attempted. I am aware this will at present hardly find general favour. I am, however, certain of my fact; and, therefore, state it boldly.

It must be admitted that ligature of the larger arteries is, under ordinary circumstances, a procedure not entirely free from danger. The Dublin surgeons, as is well known, would fain supersede even its acknowledged most legitimate adoption, on this score principally. Paradoxical as it may seem, I insist on its rejection merely, in cases where it is unnecessary, nay, even inefficacious. Deligation of the arteries of the fore-arm is only required when they themselves are wounded. The ligature is then, of course, applied directly to the bleeding point, or points. Ligature of these vessels, for the purpose of arresting hemorrhage from wounds of the palmar arch, must *per se*, necessarily fail; the supply through the interosseous inosculations, always free, upon the establishment of the collateral circulation, soon becomes materially augmented, and cancels its effect. But even were it possible to deligate all these vessels, the united result remains the same—a slowing, or mitigation only of the force of the circulation through the wound's site; and this, I unhesitatingly affirm, can be done by simpler and safer means.

In illustration of the inutility and danger of arterial deligation on the cardiac aspect for the arrest of hemorrhage from palmar wounds, I shall append an abridged account of a case treated so lately as the present year in a London hospital, and reported in 'The Lancet' of June 9th, as a "Case of Wound of the Palmar Arch, followed by serious Hemorrhage, for the cure of which the Ulnar, Radial, Brachial, and Axillary Arteries were successfully tied." [It was subsequently stated that the word "successfully" was so obviously a misprint for

"successively," as to require no correction; but this scarcely accords with the following sentence, which occurs in the second paragraph of the report:—"In the case the particulars of which I am about to relate, are presented two features of remarkable interest. The first involves *the successful issue of an operation, or rather of a series of operations*, on the arterial trunks of a man," &c. The sequel undeniably proves that every operation was utterly *unsuccessful*.]

"A man, aged twenty-eight, presented himself on the 3rd of February last, having suffered from repeatedly occurring hemorrhage, caused by a wound in the palm of the hand, accidentally inflicted by himself on the previous 17th of January with a blunt knife, the point of which penetrated the left hand at the part where the ulnar artery enters the palm. The bleeding was most profuse, and unchecked by any temporary expedients such as are usually resorted to He was admitted on the day of the accident; no bleeding vessel could be discovered, and a compress was applied. Hemorrhage returned in the night, and a bleeding orifice being discovered, a ligature was placed around it. The man remained in the hospital a few days, then persisted in returning home. On reaching his own dwelling, hemorrhage to an alarming extent occurred. A surgeon in the vicinity attended, who checked it by means of pressure. The bleeding returned on several occasions until February 3rd, when he was again received into hospital, and the radial and ulnar arteries were tied at about an inch above the wrist-joint. The 10th of February, the eighth day after the operation, blood in small quantity appeared in the ulnar wound. On the 12th (the tenth day) the ulnar ligature separated, and hemorrhage from the proximal end of the vessel followed. This circumstance having occurred at midday, I had the advantage of the opinions of my colleagues as to the course to be pursued. It was suggested that an attempt should be made to tie the ulnar artery in the palm. That proposition was declined. It was then suggested that the ulnar artery should be tied at some distance above the former ligature. I yielded to this general opinion, and tied the ulnar artery at about four inches above the wrist. He progressed favourably until the 16th, (four days after the last operation,) when hemorrhage returned with violence from both the proximal end of the vessel, where last tied, and from the distal end, where first tied. There was also considerable oozing from the palm. The wounds of hand and forearm had made no positive advance towards reparation. The patient was sadly reduced from loss of blood, which had flowed for some minutes, while partially arrested only by himself in his ineffectual attempt to tighten the tourniquet, now constantly applied. He was again laid on the operating-table, and the brachial artery tied. On the 17th, the ulnar artery, at its distal end, burst out, profuse hemorrhage followed, and blood oozed freely from the wound over the brachial artery. The tourniquet was again tightened and the arm rolled, but the quantity of blood again lost told painfully on

the man. He revived under brandy and other stimulants. I reached the hospital at midnight, full of anxiety as to the future. The operating-theatre was lighted up, and the instruments of amputation all laid out ready for use. Four operations had already been performed without success. Could I risk another more formidable operation by placing a ligature round the axillary artery. The objection to amputation appeared yet more formidable. I decided, and tied the axillary artery. The arm was rolled firmly by means of a bandage, because, although I deemed it a measure not unlikely rather to increase the liability to general gangrene of the entire extremity, yet every other care and consideration now merged in the question of life. Hemorrhage recurred from the situation of the brachial wound on the 19th, and was checked by the application of lint and carefully adjusted pressure. On the 21st, serious hemorrhage recurred from the brachial. I reached the hospital at three a.m., with a very reduced hope of saving the man's life. The arm was bared, and the brachial wound was accurately filled with scraped lint, and a graduated compress was rolled firmly over the course of the vessel. On the evening of March 1st, on the eleventh day from the last operation, a sudden burst of hemorrhage occurred from the axillary trunk, that deluged the bed in a few seconds. The bleeding, by far the most formidable that had yet occurred, was arrested by the firm pressure of the re-adjusted tourniquet. I visited the hospital during the night, with the combined feeling of disappointment at the ill success of our past struggles for victory, and a firm resolution to fight the battle to the last. The question of amputation was again raised, but there was an objection to the operation that was conclusive to my mind—it was too late. The amputating-knife would have divided the trunk of the artery below the axillary ligature! and the disease for which the operation had been undertaken would have been left behind. With respect to placing a ligature around the subclavian, what reasonable hope could be entertained that I should be more successful with it than with former operations; the prospect was less encouraging, and I early relinquished this as a course worthy of adoption. One alternative remained, and that I adopted—viz., to stop the bleeding at any expense to the arm, even though general gangrene were the consequence. I ordered the arm to be firmly rolled from the hand up to the neck with a force that would insure as near as might be the apposition of the opposite sides of the main arterial trunk of the entire extremity. This operation was most efficiently done. On the fourth day the bandage and compress were removed and re-adjusted, without hemorrhage. During the early part of the month of April the wounds gradually but firmly healed, and at the present date, May 28th, he may be said to be convalescent."

The reporter of this case regards the peculiar condition of the patient's blood as having been the chief obstacle to its satisfactory progress, and speaks of it as a case of the hemorrhagic diathesis. He

attributes much effect to the therapeutic means employed to obviate this, and observes, "My hope lay in improving the condition of the patient's blood, and in this I think I may say I succeeded."

This view is so manifestly erroneous as not to require refutation; but even granting its correctness, the surgical treatment adopted was so much the more faulty, and in opposition to sound and well-established principles. Had the hemorrhagic diathesis really existed, it may be observed, that no medical or dietetic means could, during the crisis, and under the circumstances, be reasonably expected successfully to antagonise the deleterious effect on the condition of the circulating fluid, which such excessive loss as is reported to have occurred while under treatment would inevitably produce. In such cases, every profuse bleeding deteriorates the quality of the blood most materially, and renders the chances of its final arrest all that the more improbable. The vital fluid, originally poor in fibrin, is thus almost completely defibrinised, and all power of coagulation, or completion of the healing process, nullified.

The quality of the blood in the case reported, notwithstanding the imperfect observation that that "which had collected about the bed-clothes and on the floor did not coagulate," there are reasons for believing was normal enough, and the nutritive function for its reformation (so soon as a fair chance was given for that operation) equally so. No improvement could occur before the one important item—arrest of hemorrhage, was effected. This done, Nature was fully equal to all the rest; and it is truly wonderful, considering the desperate condition entailed, and arrived at by treatment, however (thus at the eleventh hour and *in extremis*) pressure could have proved successful. It is further an incontrovertible proof of my assertion, that hemorrhage from the palm is (if by any means) thus restrainable; for if we can, in the very case that occasioned so much trouble, in this way after all command the flow from, and even cause permanent closure of, a ruptured axillary trunk, how much more easily, and while circumstances were more favourable, could we ensure arrest of hemorrhage and obliteration of the comparatively insignificant palmar arch.

The particulars of another case, a perfect type of its class, may now be placed in juxtaposition and contrasted with that just considered.

"A labourer, aged forty, fell upon his scythe, thus causing an extensive wound completely across the palm of the hand. He bled most profusely. Arterial blood spirted very freely from the wound, and before I could apply the tourniquet to the brachial artery considerable hemorrhage occurred, and the man fainted. The palmar arch was evidently wounded. I strapped up the wound with adhesive plaster, and placed a firm compress of lint over the plaster, bandaging the hand and forearm moderately tight, and occasionally wetting it with cold water. *I also kept the tourniquet sufficiently pressing upon the brachial artery to moderately check the impetus of the circulation*

through the limb. No further bleeding occurred, and as the wound remained easy, I did not remove the dressing for six days, when I was gratified to find it had nearly healed. The patient soon regained his usual health and strength."

I cannot resist directing special attention to this judicious observation, which accompanies the report: "When Nature is a little assisted, what serious injuries she is capable of repairing."

Comparing the simplicity and efficiency of the treatment in this case with the difficulties and dangers encountered in the former one—looking "on this picture and on that"—who could for a moment hesitate in deciding which is the more worthy of adoption. But it may be urged, there is no similarity or fair comparison between these two cases—the latter simple and ordinary, the former complicated and peculiar. It may further be argued that pressure, the treatment which I advocate, had a fair trial, and was found wanting when circumstances were thus complicated. That such is far from the fact, I believe admits of easy and ample proof. Moreover, it can scarcely be denied, that, by the other mode—viz., arterial deligation on the cardiac aspect—the most desperate consequences ensued, every successive operation only increasing the danger, and eventually effecting what might justly be regarded as only by a miracle reparable.

I would emphatically reiterate the statement, that hemorrhage from palmar wounds, restrainable by any means, is effectually so by methodical and correctly adjusted pressure; that it may, under all circumstances, be thus more easily and safely treated than by indirect arterial deligation; and that this latter measure, often useless and dangerous, is unnecessary and unjustifiable. The assertion will, I am aware, not yet be universally accepted, and to some may even be unpalatable. Ligature of the radial and ulnar arteries, operations sufficiently easy, sometimes afford a rather pleasant bit of surgical practice, and, accompanied with, or followed by, a little anatomical eloquence with reference to their relations and land-marks, have, with the uninitiated, a very imposing effect. But trifling or vain show in surgery is highly reprehensible, and the adoption of hazardous measures, where simple and safe ones will serve, is surely more so, and must not be allowed to pass uncensured.—*Lancet, Aug.* 18, 1855, *p.* 141.

ORGANS OF RESPIRATION.

61.—CASE OF TRANSFIXION OF THE CHEST FROM SIDE TO SIDE BY A SHARP STAKE.

This remarkable case is communicated to the 'Journal de Medecine' of Bordeaux, by Dr. Lassaigne, surgeon of the 11th regiment of the line. When we consider the extreme danger of penetrating wounds of the thorax, the recovery of the patient is certainly surprising.

Case.—A soldier was employed in gathering cherries, when the branch of the tree on which he rested his weight broke, and he fell a height of several feet; his trunk coming horizontally on the stakes which protected some vines placed beneath, he was literally spitted.

Dr. Bax, one hour and a half afterwards, found the wounded man lying on the ground, with the chest pierced from side to side by the stake; the point had entered the intercostal space between the seventh and eighth ribs on the left side, four or five fingers' breadth below the nipple, and rather behind it, and had come out between the fourth and fifth ribs on the right side, behind the angle of the axilla, the point projecting from the chest to the extent of fifty centimetres. The wounded man retained all his senses; his countenance did not indicate any great suffering; he only complained of the weight of his head when it was not supported, and of a difficulty in moving his arms; voice natural; no cough; apparently no disturbance of either respiration or circulation; no indication of hemorrhage either externally or internally.

Dreading hemorrhage, when no assistance was to be had, M. Bax was unwilling to remove the foreign body on the moment, and accordingly the patient was removed to an hospital in the neighbourhood. When placed in bed and undressed, a portion of the shirt was found to have been carried into the thorax, forming a kind of sheath around the stake, for a considerable distance. The stake was extracted with ease, the sheath formed by the fold of the shirt seemed to facilitate the operation. This was on the 3rd July.

Nothing unusual was observed subsequently except the occurrence of emphysema, which extended upwards to the neck; there was no cough or evidence of internal hemorrhage.

Intense inflammation of the side, and of the chest generally, supervened, but yielded to active treatment. On the 6th July an improvement had already taken place, and the wound on the left side had united by the first intention. The improvement steadily continued, the wound on the right side subsequently closed, and about the 25th July convalescence was established.

The patient was subsequently presented to the Society of Medicine of Bordeaux; after examining the wounds, the members agreed in thinking that the stake had passed through and through the lung.—*Journal de Medecine de Bordeaux.—Dublin Hosp. Gazette, Aug.* 1, 1855, *p.* 202.

62.—*Case of a Man Swallowing a Half-sovereign.* By G. Mallett, Esq., Bolton-le-Moors.—On the 17th of this month, a man, aged 26 years, put into his mouth a half-sovereign; a child playfully attempting to seize it, caused him to throw back his head; and, by so doing, the piece of money was precipitated into the larynx. Mr. Eames, an intelligent practitioner in the neighbourhood, was immediately sent

for, and, finding such to be the case, requested further assistance. I was then summoned, and saw the patient about four hours after the accident.

The man was breathing calmly and naturally: he had no weezing, cough, or other distressing symptoms; but he said he felt an uneasiness about an inch below the thyroid cartilage; and, on placing the stethoscope over that portion of the trachea, a decided whistling in the respiration was heard. Taking into consideration the absence of all irritation, and in fact of all distressing symptoms, we decided that we should not be justified in opening the trachea until some cough and irritation had come on, in the hopes that the cough might be sufficient to dislodge the foreign body.

August 20th. He was much the same, except that the breathing was a little more whistling, accompanied with a slight degree of fever.

August 21st. A fit of coughing came on. He was directed to put his head lower than the body, and the half-sovereign was ejected by the cough. He has had no unpleasant feeling since, and is in fact quite well.

Remarks. I think the result proves that we were justified in deferring the operation—an operation easy enough to perform, but which is often attended with fatal results, either owing to the immediate effects of the operation, or more probably to the incurable nature of the disease for which it is performed.—*Association Med. Journal, August* 31, 1855, *p.* 813.

ALIMENTARY CANAL.

63.—IMPROVED FORCEPS FOR HARE-LIP OPERATION.

By Dr. Alden March.

[The chief difficulty in this operation is to cut away just enough, and not too much, of the wounded edge of the fissure.]

Skey says, in his treatise on operative surgery, that "young operators are prone to remove too little." Pirrie, in his system of surgery, in describing the mode of operating for hare-lip, says, "the blade is then slightly turned so as to direct the edge a little outwards, and is brought down, cutting off a *thin slice* from the edge of the fissure." I object to the term, "thin slice," since I believe it to be well calculated to lead the new beginner or inexperienced surgeon to entertain the notion, that merely making raw the edges of the fissure, is all that will be required before the application of the sutures.

Such a procedure would be liable to result in a failure of firm union; or if union should take place, in two kinds of deformity—in an artificial *filtrum* or groove extending from the nostril to the lower part of the lip, and in an unsightly notch at the prolabium. On the other

hand, it may be cut away so freely as to result in shortening, and consequently tightening the lip to an unpleasant degree.

To obviate, or to prevent the notch that is so apt to follow the old method of operating by straight incisions, two plans have been adopted; one with a semi-circular cut from top to bottom; and the other with straight lines from the top to the upper border of the red part of the lip, and from thence towards the fissure at an angle of about 45 degrees, so that a long prolabium is preserved.

Fergusson, in his system of practical surgery, upon this subject remarks: "The semi-circular line has been recently claimed by the surgical authority of the 'Edinburgh Monthly Journal of Medical Science'; and the line, with the angle at the upper part of the prolabium is usually attributed to Malgaigne."

He further remarks, "I have tried both plans frequently, and can bear witness in their favour, as enabling the surgeon, both to do away with the notch above alluded to, as well as to give that length or depth to the upper lip, which is often so deficient. Neither of these lines, however, will be of much avail, unless the margins be freely paired; and in all the operations for hare-lip, which I have myself performed, whether single or double, I have never had any reason to regret having cut away too much, but occasionally have wished afterwards, that I had not been so sparing of the margins." The author further adds, "This is mentioned for the sake of the young operator, who may probably suppose, as I myself did, that he will not be able to bring the edges in sufficiently close apposition; on this score, however, he need be in no dread."

The instrument, or forceps, I have caused to be constructed, (Fig. 1,) is designed to combine the semicircular line of the Edinburgh surgeon, and the angular line of Malgaigne.

The jaws or transverse portion of the forceps are provided with blunt teeth, to make the hold upon the lip secure; and having a general and pretty regular curve on the outer border of three-fourths of its length, and from that point the line extends towards the handle or vertical part, at an angle of about 45 degrees, for the remaining one-fourth of the outer border of the jaws.

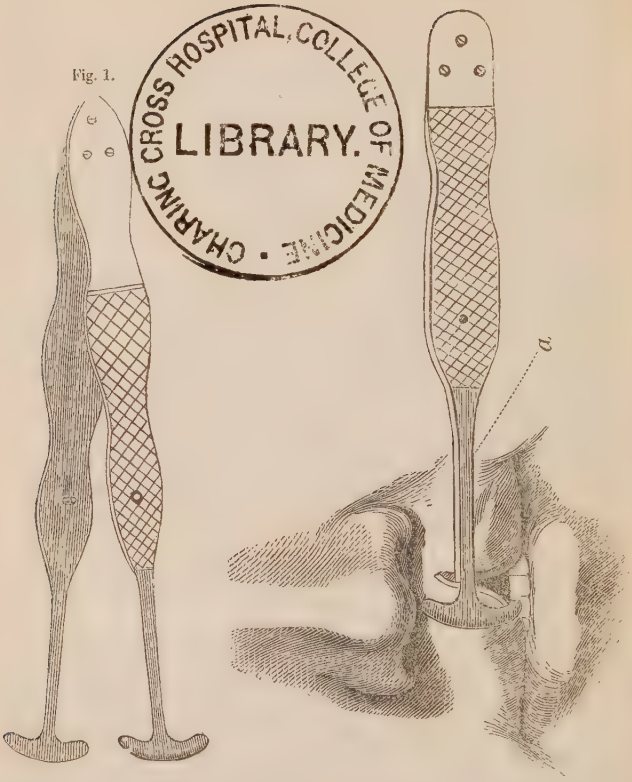
By the aid of this instrument the lip can be securely held, while its shape affords a secure guide in making the line of incision in such a way as shall secure all the advantages of both a semicircular and angular border.

All practical surgeons know that there is a considerable variety of *form* and *degree* of defect, or malformation, in hare-lip.

It will hardly be deemed necessary or important to speak of the number, or the duties of assistants. Suffice it to say, that the infant is to be held either in the lap of an assistant, or held securely upon an operating table, while the operator may place himself a little to one side, or in front of the patient; and embrace the left border of the fissure between the blades of the forceps, so that their oblique

Fig. 1.

Fig. 2.



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lower angle shall look towards the opposite free border of the fissure, and taking hold of the full thickness of the lip; the amount, and precise shape of the part to be removed will be indicated by the line of the outer border of the transom portions of the blades of the forceps.

When the forceps have been properly placed, (see Fig. 2,) and secured by a suitable amount of pressure, the operator next proceeds to transfix, either from within outwards at the upper angle under the nostril, or from without inwards at the same point, with a narrow sharp-pointed bistoury, and to cut, by a sawing motion, downwards and towards the centre of the cleft, taking care to keep the knife close

to the outer convex border of the forceps, In this way all of the free rounded border, at the point where the prolabium and rounded fissure run into each other, will be preserved. The opposite side is to be excised in a similar manner. If the operator be ambidextrous, he can change hands with the instruments—if not, the hands must cross each other, with that holding the knife situated above, and made to cut from without backwards and downwards and towards the central line of the fissure.

I believe it may be laid down as a fixed principle, that every necessary effort should be made to prevent undue incited or inflammatory action in both surfaces of the wound and around the sutures; therefore the farther removed the sutures are from the surface of the wound, and the smaller they are, consistent with the necessary degree of firmness and strength, the less likely will they be to exert an unfavourable influence upon a speedy and firm union.

It is thought to be a matter of no small importance to select the kind of suture and material best calculated to fulfil their intended designs. I have employed the linen thread and silk interrupted sutures; the pin and needle suture; I have used the common sewing needle, the common domestic pins, and the silver pins with steel points, and have succeeded very well with all of them.

Some thirty years ago, when the late Sir Astley Cooper was in the zenith of his professional glory, or about the time he published his surgical lectures, the interrupted suture was quite extensively employed in England and in America; and on the authority of one whose surgical law seemed almost as binding and as unalterable as that of the "Medes and Persians." Scarcely any one, except the continental surgeons, dared to oppose the surgical authority of Sir A. Cooper, nor hardly to think or act upon the convictions of their own observations and experience. And yet, in a few short years after the setting of the sun of the great English surgical luminary, so long ago as 1848, I witnessed the hare-lip operation performed in one of the London hospitals, by the late Mr. Aston Key, one of the cleverest operators of his day, when I found he had abandoned the interrupted suture, and had adopted the French hare-lip pins. From that time to the present, I have mostly employed metallic sutures in the operation for hare-lip.

I believe that small sewing-needles, having their heads well enlarged with sealing-wax, by which they can be held securely between the thumb and fingers; and small common domestic pins, (if they can be found long enough), or what is better, perhaps, entomology or insect pins, will answer all the purposes of those made for the express purpose.

The entrance of the pin should be about three-eighths of an inch from the cut border, and extend nearly or quite through the full thickness of the lip, and be made to enter on the opposite side as deep, and to have an exit at the same distance on the further side of of the wound.

In operating on children, Malgaigne passes the needles through the whole thickness of the lips, by which perfect apposition is just as easily effected, and at the same time the wound is relieved from the irritation of the needle or pins, (if there is any apprehension of such an effect,) and the secretions of the mouth, and the food thoroughly excluded from the wound.

I have spoken of the use of the common sharp-pointed slender sewing needle as being well calculated to answer all the purposes of gold or silver pins. And as those who have not seen the experiment tried might be fearful of their tendency to become corroded and roughened by the moisture of the part, and consequently produce inflammation around them, I will briefly state the result of my observation and experience in their use.

The first operation for hare-lip I ever witnessed was at least thirty-six years ago, and in that the common "chapel sharp" needles were used, and with perfect success. And I commenced my career in the operative art of surgery with the operation for hare-lip, now nearly thirty-five years since, and for maintaining the cut edges in apposition I employed common sewing needles; and I have repeatedly used them since with good success.

To show that highly polished steel will not readily induce inflammation when piercing or occupying different tissues of the human system, I will state that I have the apparatus of Malgaigne, which he used in the treatment of oblique fractures of the tibia, when there is a disposition in the lower extremity of the upper fragment to overlap and to "rise up," so as to press against the under surface of the skin. The means employed by Malgaigne to bring the refractory point of bone down to its proper place, and without making pressure on the integument over the bone, consisted in a yoke of an elastic steel plate of nearly half of a large circle, to which is attached a belt or strap, which is made to embrace the bed-piece and side-pieces upon which the limb is placed; and of a kind of bodkin, sharp pointed screw, of three-sixteenths of an inch in diameter in the screw part, and the pointed part half an inch in length. A long fenestrum is situated in the centre of the yoke, and by a sliding block or female screw, into which the pin or peg screw is fixed, it may be made to rest on the inner face of either tibia. After the apparatus is properly adjusted, and the broken bones placed in apposition by extension, counter-extension and coaptation, the sharp point of the bodkin screw is made to penetrate the skin, and to pierce the bone about an inch above the point of the overriding fragment. A few turns of the screw by the thumb-piece with which it is provided at the top, it is made to enter the bone nearly the eighth of an inch. The puncture in the surface of the skin is about the sixteenth of an inch in diameter.

I have thrust this instrument through the skin, cellular tissue, periosteum, and into the bone, as above described, and allowed it to remain in contact with all of the above tissues for three weeks, without

producing suppuration, or even the least appearance of inflammation. It is thought that these facts will prove pretty conclusively that no fears need be entertained of any bad consequences arising from the use of steel needles in the operation for hare-lip.—*Transactions State Med. Society of New York, Feb.* 1855, *p.* 118.

64.—*On the Operation for Hare-Lip.* By M. Roux.—The cases that have come under Roux's care have been very numerous, and the operation has been performed at almost every period of life, from the age of one day to the fourteenth year. Roux, however, is distinctly in favour of operating at a time ranging from ten to twelve months, as he states that his failures after the operation on children some days or even some weeks old have almost equalled his successes. The argument supporting his practice is clearly stated, and is mainly drawn from the fact of the lips of the child having then acquired a certain amount of thickness, a greater length for the application of the sutures, an increase and activity of circulation, and a consistency of tissue, capable of a better resistance to the traction of the threads and needles; and, furthermore, from the fact of the approximation of the two portions of the alveolar arch and palatine vault (in case of a cleft of these parts) taking place almost as rapidly as if the operation had been done at an earlier period of life. He recommends the course particularly in cases of hare-lip complicated with fissured palate, and makes an exception in favour of an early operation in many cases of simple hare-lip, provided the constitution of the child be sufficiently good to warrant success; for, as he justly remarks,—

"The lip will in a few days have recovered its ordinary conformation, and will be capable of exercising a force necessary for suction; the child will be able to take the nurse's breast, and will be deprived of the uncertain results of artificial nourishment."

In the account of the mode of operating, we find that the sutures were removed at the end of the third or fourth day, usually the latter, and that the needles were inserted three lines at least from the incised border.

The insertion of the needles through the lip at a proper distance, and their retention for a sufficient period, constitute the chief elements of success in this operation. We are in the habit of introducing them through the two portions of the lip, about four French lines from the proposed line of union, and of retaining them until the fifth or sixth day, and we believe this is the plan adopted by those who have had the greatest amount of success in the treatment of this affection.—*Lancet, Aug.* 25, 1855, *p.* 171.

65.—*On Removal of the Tonsils.* By Langston Parker, Esq., Surgeon to the Queen's Hospital, Birmingham.—Having determined

that there are certain cases of enlarged tonsil, in which the organ of hearing is not concerned, that require an operation, the next question is how is this to be done. There are three or four ways. Some surgeons try to burn them down with nitrate of silver; some, again, to remove them by ligature. I have done it by ligature myself; but it is difficult, tedious, and painful, and is altogether an abominable proceeding. First, you have to get the ligature round the tonsil, which is difficult; having got it there, it requires tightening from time to time, which is also difficult; the ligature has to lie in the mouth for several days, producing a discharge of fœtid saliva, and leaving the patient in misery; sometimes also leaving a nasty troublesome sore when the diseased lump has fallen off. The proper way to remove an enlarged tonsil is clearly by excision, and that simply by means of a curved probe-pointed bistoury. It is very easy to remove it in a proper way. The throat should be well exposed; the tonsil should be seized by a long pair of forceps, terminating in a small hook. You use the right hand if you have to operate on the left tonsil, and the left hand if the right tonsil. You then get a curved bistoury, probe-pointed, the half of the blade being wrapped round with lint to prevent injury to the surrounding parts. The tonsil should be pulled gently out; the knife then should be placed with its back to the base of the tongue; and you should cut from below upwards. If you cut downwards, you run the chance of injuring the tongue. Follow the curve of the pillars of the fauces, and take care that the blade of the knife is properly directed. It should not be directed straight upwards, but inclined inwards, at an angle of about forty-five degrees. Then it should be made to move with a sawing motion, till a portion of the tonsil is removed. Another question arises: How much should be removed? There is no necessity to remove it all: perhaps one-half or a little more will be quite sufficient. In both the cases under notice, about two-thirds of the enlarged mass was removed; that was quite sufficient to remove the impediment to deglutition. Tonsils may be removed in half a minute in the way I have mentioned, without much pain, and with no danger to the patient. In the operation, a very ingenious little instrument, which has struck me as being exceedingly useful as a sort of gag, may be employed. It is made by Mr. Coxeter, of Grafton Street East, London; and is really admirably adapted for keeping the mouth open and the lips apart. The removal of the tonsil is very much facilitated by the use of an instrument of this kind.—*Association Med. Journal, July* 13, 1855, *p.* 649.

66.—ON CASES OF FEMORAL HERNIA.

By James Spence, Esq., Surgeon to the Royal Infirmary, Edinburgh.

[In many of the cases related by Mr. Spence, from the general symptoms, the tightness of the stricture, the time that had elapsed, the

feculent vomiting, the hiccough, and the morbid alteration in the constricted portion itself, we might have expected an unfavourable result, and yet in none did any untoward symptoms supervene.]

In a former series of hernia cases, published in the 'Monthly Journal,' I had occasion to contrast different cases, and to remark on the difficulty of prognosis from the appearance of the constricted portion of intestine; but experience leads me to believe, that examination of the state of the bowel immediately above the constriction may form a criterion. If it be of a pale reddish-grey colour, and feel thick and fleshy, the chances are in favour of a successful result, the constricted portion will be likely to recover itself when replaced.

On the other hand, if the bowel above the constriction be of a bright pink colour, appearing thin and as if distended with air, and bedewed with a clammy exudation,—and if there be a large escape of red or dark-coloured serous fluid from the abdomen on dividing the constriction,—the prognosis is most unfavourable, as indicating that peritonitis has commenced, or that structural alteration is proceeding, in and beyond the constricted portion.

The practice of gently drawing down and examining an inch or two of the bowel above the constriction, is advisable, I think, in all cases where we open the sac, both because it ensures that the constriction is fairly removed, and, by allowing the protrusion to be emptied of its contents, renders its reduction more easy; but it is specially necessary where the constriction has been of long duration, for in such cases perforation not unfrequently occurs from half-an-inch to an inch above the constriction. I have in my possession three preparations showing this state in cases of femoral hernia where the patients died without being operated on, and I need hardly remark what would be the result of returning a portion of bowel either actually perforated or about to sphacelate.

Some of the cases narrated also present individual peculiarities deserving attention. Thus, in one case, we find a condition showing the necessity for constant caution in every case of herniotomy, however simple the case may seem; for here, when the lower part of the sac was opened over the collected fluid, had I, without further examination, attempted to run the bistoury upwards to slit it open, the bowel, from its close adhesion above, would certainly have been injured, and this has actually happened in similar cases.

In another case, the congested lymphatic glands adherent to the sac, and enveloped in the thin, smooth, transparent fascia propria, had very much the appearance of the sac itself. I have met with several such cases where the deep glands were thus closely adherent to the sac; and in all of them where I had to open the sac, I have pursued the plan I adopted in this case, viz., removing the detached portion of the sac together with the adherent glands; because, in such cases, the dissection necessary to expose the sac has generally so injured the vitality of these structures that they are almost certain to

slough, or to lead to tedious suppuration, and so I think it best to obviate such consequences by at once removing what would prove a source of irritation, and I have never seen any reason to regret having done so.

In a third case, there was some little obscurity as to the nature of the swelling, as her history of it was by no means clear. She had for years suffered from a large uterine tumour, and was subject to attacks of vomiting and abdominal pain; and as may be supposed from the condition of the hernial tumour, as seen during the operation, its character was not very distinct. It was possible it might be a glandular swelling connected with the uterine disease; and I confess that, during the operation, when I could not trace the continuity of the small swelling up towards the ring in the usual position, I began to suspect such might prove to be the case, especially as I knew of a very similar case where that had been found concurrent with all the symptoms of strangulated hernia. Still, the rule of practice was clear, and accordingly I proceeded, by careful dissection, to make sure of the nature of the smaller tumour.

In a fourth case, the abscess which formed subsequent to the operation, though a serious complication in a person at her advanced age, could scarcely be regarded as a consequence of it; for there were no extensive incisions, nor interference with the parts, during the operation, likely to lead to the formation of matter. Besides, it occurred eighteen days after the operation, and on the opposite side of the abdomen; and although it ultimately partly discharged itself by the wound, that was only owing to the pus meeting with less resistance in that direction, and to the patient's obstinacy in not allowing the abscess to be opened.

In opening the sac in one case, after having reduced a part of its contents, I proceeded upon a principle which I hold as essential to safety in performing the extra-peritoneal operation, viz., that the surgeon should satisfy himself that the sac is fairly emptied of its contents; and that, when any part of the hernia cannot be so reduced, the sac shall be opened to make sure of its condition. For whilst I think that, in recent cases, when we can readily reduce the hernial protrusion without opening the sac, it is well to avoid further interference; on the other hand, I do not apprehend so much danger from opening the sac as some do, and, at all events, it is never to be compared with the risk of leaving any portion of such a hernial protrusion unreduced and unexamined.

Indeed, I think that the dangerous form of peritonitis we meet with in cases of hernia, is most generally antecedent to, rather than consequent on, the operation; and from all I have seen of *post mortem* examinations of such cases, I believe that it depends upon inflammation arising at the constricted part, and thence diffusing itself generally. I have seen fatal peritonitis, from this cause, follow an operation where a recent femoral hernia was reduced with great ease,

without opening the sac; and I have at present a case of inguinal hernia, which bears on this point. When first called to see the man, he was labouring under urgent symptoms, depending on a large scrotal hernia, which had been down for twenty-six hours, and had resisted all efforts to reduce it by taxis. I succeeded in reducing it, however, with the aid of chloroform; but this was followed by an attack of acute peritonitis, requiring leeching, calomel, and opium, &c., to subdue it. A few weeks after, when able to go out, he left off the truss for a short time, and the hernia again came down; urgent symptoms supervened, and, although I saw him early, all my attempts to reduce it by taxis were vain. I was obliged to operate; and naturally fearing a tendency to peritonitis, and also on account of the size of the swelling, I was anxious to avoid opening the sac; but this I found impossible, as the stricture was evidently in the neck of the sac itself. I therefore opened it, and yet the patient, who is now quite well, never had the slightest symptom of peritonitis after the operation.

Another case was purely omental hernia, which, as its history shows, had slowly progressed from incarceration and congestion to complete strangulation; and the removal of all but gangrenous mass of omentum seemed to me the safest proceeding, when I considered the little vitality of the fatty texture and the small chance of recovering itself, the great risk of gangrene occurring in and spreading from it, and the consequent danger of inflammation of the omentum, and general peritonitis.

In reflecting on the complications met with in such cases as that of the third case narrated in this series, and which I have so frequently met with in cases of femoral hernia, both in my own operations, and seen while assisting other surgeons, it has always seemed to me, that if one thing was more essential than another to the safe performance of herniotomy, it was that the incisions should be so placed as fairly and fully to expose the structures over the neck and upper part of the protrusion at least, and in small herniæ, the whole tumour, whether the sac was to be opened or not, so that the operator might make sure of the removal of all constriction, and of the gradual and complete reduction of the contents of the sac; or, in the event of difficulties occurring, that he might be able to judge of the state of parts, and to *see* what he was doing. Accordingly, I have never been able to appreciate the supposed advantages of the plan of operation proposed by Mr. Gay, which has for its avowed object the division of the stricture without exposing any part of the protrusion or its proper coverings, by means of a small incision made at some little distance from its upper and inner side, approaching almost to the principle of subcutaneous division of the stricture.

This plan appears to me the most hap-hazard method that can well be imagined; and I confess I was greatly surprised to find, from some remarks in a paper by Mr. Ward, that surgeons of such experience in

herniotomy as those of the London Hospital, should have adopted it. Professor Fergusson, in his 'Practical Surgery,' likewise eulogises the plan; but any one looking at the direction of the incision, as represented in his work and that of Mr. Gay in the original memoir, will see there is a difference even in that respect; and that he does not carry out the more objectionable principles of Mr. Gay's method is obvious, I think, from what he says when speaking of the question of not opening the sac in hernia: "In many I have found it answer admirably; but in others, even after the stricture had been divided, I have, probably from an old and bad habit, felt that, without opening the sac, I could not be satisfied, and have therefore done so, occasionally with advantage, and never, that I could perceive, with any material difference of hazard to the patient." A safer plan, and one requiring more exposure of the hernia than inculcated by Mr. Gay.—*Edinburgh Med. Journal, Sept.* 1855, *p.* 197.

67.—MODIFIED TREATMENT OF FISTULA IN ANO.

By Dr. Thomas R. Mitchell, Liverpool.

Having lately paid a good deal of attention to diseases of the rectum, I am anxious to direct the notice of the profession to a modification of treatment in the cure of fistula in ano. It is, I believe, an established axiom that in all cases it is necessary to divide the sphincter ani muscle, the usual operation consisting of the introduction of a probe-pointed bistoury as far up as the sinus extends. Others recommend the mere division of the sphincter in a lower situation. Whichever operation is performed, the result is very often a relaxed state of the sphincter for some time afterwards.

In a case on which I operated twelve months ago, the gentleman had considerable difficulty in retaining the bowel up, particularly after violent exercise or defecation. In this case I found that the fibres of the sphincter ani were much relaxed, so much so as to allow the rectum to protrude for several inches, so as very closely to resemble a prolapsed uterus. The constitution began to suffer from the constant discharge of muco-purulent matter, and he was quite incapacitated from following his employment. Having previously emptied the rectum by an aperient, I directed him to force down as much as possible, and then proceeded to touch the tumour with strong nitric acid; this was done with a piece of thin wood, four stripes extending from the upper part of the tumour to the sphincter being made on the surface; the part was then smeared well over with oil, and returned. The operation required to be repeated at the end of ten days, when only about two inches of the rectum could be forced down, and he has since then been able to go about his employment without the slightest inconvenience.

The profession are indebted to the late Dr. Houston, of Dublin, for

the introduction of nitric acid in the treatment of vascular tumours of the rectum, many cases of its successful employment being given by him in the twenty-third volume of the 'Dublin Journal of Medical Science.'

Since the above case was treated, I have had several of a similar nature, and the result has been the same. It would, therefore, be unpardonable on me to enlarge further on the subject, particularly as a similar treatment has been adopted very extensively by other surgeons, and is well known to the profession. It, however, struck me that if, instead of the great relaxation of the sphincter which so frequently follows its division, we could cause a constriction as great or nearly so as before the operation, we should be doing good service. Now this I think may be accomplished by a very simple method—employing the nitric acid before the relaxation takes place, or prior to any protrusion; and the plan I adopt, and which I have hitherto found very successful, is to apply the strong nitric acid around the margins of the sphincter ani which have been divided, and this I do on the fourth day after the operation; the pain of its application is quickly removed by smearing the parts over with oil, and it is only necessary to apply it twice.

Before concluding these remarks, I wish to state that I have found patients labouring under diseases of the rectum particularly difficult to get under the influence of chloroform, and have found the process much facilitated by employing it locally as well as by inspiration, as I have found the parts excessively sensitive even when the patient has apparently been fully under its influence, and when pricking or pinching was unheeded. This, however, I think may be easily explained by the fact of the patient's sufferings having been for some time directed to the part, and to the nerves being in a highly sensitive condition.—*Lancet, Aug.* 4, 1855, *p.* 104.

ORGANS OF URINE AND GENERATION.

68.—ON THE ANATOMY AND PHYSIOLOGY OF THE URINARY ORGANS.

By Dr. Alexander Henry.

Anatomy and Physiology of the Kidney.—The following is an abstract of an able paper by Dr. Robert M'Donnell, of Dublin, published in the 'Glasgow Medical Journal' for October 1854.

After repeated examinations of the kidneys of man and other mammalia, both in the uninjected state, and injected with materials varying much in consistence, Dr. M'Donnell adopts the description of the vascular apparatus of this organ given by Frerichs ('Die Bright'sche Nierenkrankheit und deren Behandlung, 1851'). This description, which, in all material points, coincides with that given by Bowman

and Johnson, runs nearly in these words:—"The manner in which the blood-vessels are distributed, and the mode in which the circulation is carried on in the kidney, are of great importance, in order clearly to comprehend the mechanism of its secretion, as well as the pathogenesis of kidney disease. The renal artery, which is equal in circumference to about one-seventh part of the abdominal aorta, divides, immediately on its entrance into the kidney, into several branches, which pass onwards between the pyramids to the cortical substance; these branches, on their way, give off some small twigs, which furnish capillaries to the straight urinary tubules, and are ultimately lost on the boundary between the medullary and cortical portions, in small vessels, of which a small part only passes into the capillary system of the cortex, while by far the greatest part passes on to and pervades the Malpighian capsules. After entering the capsule, the vessel straightway splits up into from three to five twigs, which, in their tortuous course, fill the capsule, and then again converge into one trunk, which a second time pierces the capsule, generally close to the ingoing (afferent) vessel, and thus passes into a capillary plexus, which forms a network around the urinary tubules of the cortex. The twigs which fill the capsule, and thus form the Malpighian tuft of vessels, are smaller than the ingoing (afferent) vessel, which latter is usually larger than the outgoing (efferent) vessel; but, according to Bowman, this is not always the case. The tuft or glomerulus of little vessels fills the cavity of the capsule, and lies naked in it. I agree with Bowman and Johnson in considering that these vessels are not clothed with epithelium, as Gerlach maintains. The outgoing (efferent) vessels of the Malpighian body form a close anastomosing network around the tortuous urinary tubules of the cortex. These gradually uniting into larger venous trunks, the blood pursues its course to the renal vein, which leaves the kidney as the artery entered it."

Thus it appears that a Malpighian body is constituted by a tuft of vessels lying naked in the dilated termination of a uriniferous tube forming *the capsule*. The small vein by which the blood leaves the Malpighian body can, with the utmost ease, be injected from the artery, as can also the outgoing vein, and the network in which it loses itself. Nay, more, a thin injection, thrown in this direction, flows often without difficulty from the renal vein. But no injection, however fine, had Dr. M'Donnell been able to throw in a retrograde course (that is, from the vein), so as to fill the the vessels of the Malpighian body. This fact Bowman explains by the mechanical obstruction offered by the capillary network through which the injected fluid must pass, when thrown in from the vein. This explanation Dr. M'Donnell does not consider satisfactory. He has passed a gentle stream of water into the artery of a kidney. After a little time, the fluid flowed from the vein deeply coloured with blood. After maintaining this water-circulation for a sufficient time to clear out the contained blood, he has tried to pass the stream of water in by the vein

and out by the artery. The kidney swelled to a great size, but even great pressure would not effect an artificial retrograde circulation. He has tried the same experiment with spirits of turpentine, spirit of wine, and other subtile fluids, with almost constantly the same result. He has never succeeded in filling the capsule of the Malpighian body with fluid injected from the pelvis of the kidney, although he has often filled the tubes as far back as the surface. He agrees with Bowman as to the difficulty of effecting this, but not as to its impossibility. Toynbee's assertions seem too circumstantial to be devoid of truth ('Medico-Chirurgical Transactions', vol. xxix); and Dr. M'Donnell has in his possession a preparation made by Professor Hyrtl, of Vienna, and thus labelled by that eminent anatomist:—"*Sectio renis hominis; injecta in pelvim renalem materia alba usque in capsulas Malpighianas progressa est.*" The sessile dilatations connected with the tubuli uriniferi, mentioned by Gerlach ('Müller's Archiv.', 1845), he has never seen.

The following account may be given of the circulation in the kidney:—A stream of blood is directed to the kidney through an artery, very large in proportion to the size of the organ, and with considerable force. The blood passes through a double system of capillary vessels; first, in the corpora Malpighii; secondly, in the anastomosing network on the walls of the uriniferous tubes: and ultimately makes its exit by a large venous trunk—the renal vein—which joins the ascending cava some way below the hepatic veins. The renal vein, at its junction with the cava ascendens, is often guarded by a valvular apparatus, which is met with very frequently, if not constantly, in the horse, and sheep, and occasionally in man. This valve prevents, more or less completely, a regurgitation of venous blood from the cava to the kidney, and consequent venous congestion of that organ; an occurrence which must otherwise readily take place from valvular disease of the heart, or any other lesion retarding the venous circulation.

It may be supposed that, while the stream of blood is flowing in its normal course along the cava ascendens towards the heart, these valves prevent the blood of the extremities from entering the renal veins; but that, if a current pass down the cava ascendens, this valvular apparatus, by flapping out towards the middle of the cava, would favour the passage of the venous blood into the mouths of the renal veins. The examination of the valve in the recent state is sufficient to refute at once any such idea. The fineness and delicacy of the membrane composing the valve is such, that any current, however feeble, entering the mouth of the renal vein, must carry the membrane with it, and so close, or help to close its orifice. The presence or absence of this valvular apparatus must be of importance in the consideration of renal disease, its deficiency no doubt predisposing to congestion, and consequent chronic disease of the kidney.

According to Bernard ('Archives Générales de Médecine,' vol. xxiii.), there exist channels of anastomosis between the vena portæ and the

cava ascendens, which enter the cava behind the liver, and at the lower part of that portion of the cava which lies in contact with the liver. During digestion, the greater part of the portal blood, coming from the intestines, enters the liver, there to be purified. Part, however, of the portal stream passes through the anastomosing channels directly into the vena cava ascendens; and this must likewise be purified by glandular action. Bernard, therefore, asserts that "There exists in that portion of the inferior cava which lies behind, and is below the orifices of the hepatic veins, a muscular coat of considerable thickness, the contractions of which cause the cava and renal veins to pulsate during digestion, the pulsations not being synchronous with those of the heart. In addition to this muscularity, the inferior cava of the horse presents two valves, attached to its wall immediately below the orifices of the renal veins. Now the consequences of this arrangement are as follows:—During digestion, the liver becomes congested, the portal blood regurgitates, and would stagnate but for the existence of channels enabling it to pass into the inferior cava below the orifices of the hepatic veins. The blood thus diverted is not permitted at once to mingle with the general circulation, before being submitted to glandular action. The muscular coat of the inferior cava contracts and greatly diminishes its channel; the impeded blood is thus thrown backwards on that ascending from the limbs, but the valves below the orifices of the renal veins prohibit further regurgitation, and it is compelled to flow off right and left by the renal veins to the kidneys, which eliminate from it such materials as are excessive and pernicious; and so the *urina cibi* is constituted. Meanwhile, the order of the circulation is interrupted by the arrest of the blood ascending from the lower limbs, in consequence of the closure of the valves below the renal veins; but this disturbance is provided for by the existence of the vena azygos, which receives the impeded blood, and conveys it to the superior cava."

There is no doubt that, in man and many other animals, especially the horse, the coats of the vena cava become greatly thickened where this vessel is in contact with the posterior part of the liver. This thickening is chiefly composed of condensed fibrous tissue, with abundance of yellow elastic fibres intermingled. It varies much in thickness in different horses; and soon after death it contracts, so as to throw the lining membrane of the vein into longitudinal folds.

An examination of the valvular apparatus in the horse, or, perhaps better, in the sheep, will be sufficient to convince the observer that it is not adequate to perform the function assigned to it by Bernard. Dr. M'Donnell has injected with saturated solution of bichromate of patash and acetate of lead, thrown in one immediately after the other, the vena cava of a rabbit, from below towards the heart, having tied the vessel above the diaphragm. The injection, which passed readily into the liver so as at once to make it quite yellow, frequently did not make its way to the kidney at all; and when it did, it was found

more rarely in the left than in the right. The same result followed when the fluids were thrown down the cava from the heart.

In repeating these experiments, Dr. M'Donnell has not always succeeded in obtaining the same results as Bernard. When cyanide of potassium, mixed with carbonate of soda, is introduced into the stomach, the urine presents a blue colour on the addition of a salt of iron, and the salt is found in large quantities in the blood of the renal veins, while there is scarcely a trace in the jugulars. Dr. M'Donnell finds that the animal dies in a few minutes, if the solution be strong; and if it be sufficiently weak not to kill at once, the amount is too small to be detected in the blood. In the second experiment, a solution of cyanide of potassium, in the proportion of 20 parts of the salt to 100 of water, was thrown into the mesenteric vein of a rabbit. The urine in a few minutes contained a large quantity of the salt, but the animal suffered no inconvenience from its presence in the portal blood. When, however, a solution containing two parts of the salt to 100 of water was thrown into the jugular vein, the animal died in a few minutes, before the slightest trace of the poison could be detected in the urine. Dr. M'Donnell has found the weak solution of cyanide of potassium (2 per cent.) equally fatal, whether injected into the jugular or mesenteric vein, in rabbits operated on, both when fasting and during digestion, producing death in from four to ten minutes. When prussiate of potash and lactate of iron solutions are thrown into the subcutaneous cellular tissue, in different parts of the same animal, a blue colour is soon observed at the seat of the iron injection, becoming very marked in the course of half an hour, and the urine is found to contain prussiate of potash abundantly. If at the end of half an hour the animal be killed, and some of the serum of the blood, of the urine, and of the bile, be tested with solution of lactate of iron, a great abundance of prussiate of potash is detected in the urine, much less in the serum, and none in the bile. If, also, a drop of the iron solution be applied to the cut surface of the lung, liver, pancreas, parotid gland, and kidney, while in all of these organs traces of the prussiate are discovered, the kidney alone becomes of a deep blue colour. The same test shows a trace of the prussiate of potash at the pyloric extremity of the stomach, before any can be detected in the duodenum, ileum, or cæcum. This experiment merely proves the *elective* power that the kidney exercises. When prussiate of potash is introduced into the blood by the way mentioned, it pervades the whole of the circulating fluid, and is laid hold of by the kidney for elimination. When, however, a solution of lactate of iron is thrown into the subcutaneous cellular tissue on the back of a rabbit, and a solution of prussiate of potash introduced into the stomach, no blue colouring occurs at the seat of the iron injection; nor on killing the animal at the end of half an hour is any prussiate of potash to be detected in the serum of the blood; the urine contains the salt but sparingly, and neither the kidney nor any other organ exhibits the least tinge of blue on the ap-

plication of the solution of lactate of iron. The same was the result when the animals so treated were allowed to survive many hours.

This experiment does not seem to prove that the prussiate of potash absorbed by the stomach, and thus entering the portal blood, was got rid of through the *hepatico-renal* circulation; for once absorbed into the blood of the portal system, assuming for a moment the truth of Bernard's theory, the greater part of it would pass on through the liver, and thus enter the general circulation. The fact seems to be, that the yellow prussiate of potash, when taken into the stomach, is not absorbed into the system so rapidly as when injected into the subcutaneous cellular tissue.

Robinson's ('Medico-Chirurgical Transactions,' second series, vol. viii, p. 56) experiments "illustrating the effects of venous obstruction on the kidney and its secretion," which have been repeated and confirmed by Frerichs ('Die Bright'sche Nierenkrankheit,' p. 276), prove that not only does bloody or albuminous urine in all cases follow such obstruction, but that, as a consequence, the kidney enlarges rapidly to a great size. Thus, in the greater number of the cases in which he applied a ligature to the renal vein in rabbits, bloody or albuminous urine immediately resulted; and on killing the animals, in from ten minutes to half an hour, the kidney of the side operated on was found to weigh *twice* as much as the sound one. Frerichs states that, in an old rabbit in which the left renal vein was tied, after twelve hours the urine was found bloody and highly albuminous, the left kidney was more than double the weight of the right, and the urinary tubules were filled with blood. An increased supply of arterial blood does not, according to these physiologists, give rise to these consequences in so marked a degree as venous congestion. After applying a ligature to the aorta, immediately below the origin of the renal arteries, Frerichs says, "only in a few such cases could I discover traces of albumen. The extirpation of a kidney, (which causes a determination of blood to the other), produces this result in a very slight degree. The kidney may, after the course of ten days, double its weight; but albuminuria does not follow."

Dr. M'Donnell judiciously observes that, in treating of the diseases of the kidney, it should always be borne in mind that albuminuria is not a disease, but a symptom—a symptom which, independently altogether of any *organic* affection of the kidney, may result from particular conditions of the blood and its albumen. Kierulf has shown that considerable dilution of the blood with water is followed by the secretion of albuminous urine. Vogel has observed that the respiration of arseniuretted hydrogen gas causes the flow of dark coloured urine containing albumen; and Bernard has proved that the kidney has the power of selecting for elimination albumen thrown into the veins of the neck, and which, consequently, has not been so assimilated as to suit it to be retained in the system, No doubt venous

congestion is in many cases the starting point of chronic renal disease, accompanied by albuminuria, with deficiency of the normal salts of the urine, and especially of urea; and many of the alarming symptoms met with in such disease are due to retention of urea in the blood. Hence much practical importance is to be attached to the researches of Bernard and Barreswil, regarding the mode of elimination of urea after extirpation of the kidneys, from which they conclude that the urea is got rid of by the secretions of the intestinal canal, and chiefly as an ammoniacal salt in the gastric fluid after such extirpation. This is a fact, which not only explains in some degree the tendency to gastric irritation and diarrhœa in Bright's disease, but also suggests an idea concerning the treatment of threatened uræmic poisoning, which is well worthy of attention.

Influence on the Urine of the Drinking of Beer and Water.—Boecker ('Archiv. für gem. Arb.' 1851, I.) makes some comparative observations. After the use of beer, the quantity of urine was diminished, both in relation to the average quantity of beer drunk during twenty-four hours, and especially in comparison to experiments with water; this is observed with regard to beer chiefly in winter; but in the summer also the quantity of urine, after moderate ingestion of water, far exceeds the quantity drunk. The quantity of urine, under similar circumstances of food and drink, differs remarkably on different days, especially after drinking beer; for example, 2,631 *grammes* of beer produced 3,433 *grammes* of urine, and 3,980 *grammes* of beer produced 2,944 *grammes* of urine. In the drinking of beer, 187 *grammes* more of solid matters are taken into the system than after drinking water, and yet we find only four *grammes* more of solid matter in the *excreta* than in the latter case. After drinking beer, the increase of urine is only at a minimum. The quantity of the sensible products of perspiration appears somewhat diminished after drinking beer; and, after the same beverage, the quantity of uric acid is constantly increased. The salts, especially the incombustible, are increased by giving food at the same time; but under deprivation of food they are diminished as much as $5\frac{1}{2}$ *grammes*, although on an average 4,052 *grammes* more salts have been taken into the organism with beer than with water. Chloride of sodium is increased (about 3 *grammes*) after taking beer, though that fluid has contained none of the salt. In Boecker's experiments, the water contained no sulphates except a little sulphate of lime, while this class of salts were contained in large quantity in the beer; yet a considerably smaller quantity of sulphates were excreted in the urine after taking beer than after drinking water. As a part of the sulphates probably proceeds from the destruction of the protein compounds, Boecker is inclined to see in this diminution of the excretion of sulphates a retardation of it by the beer of the change of the protein matters; a view which is supported by the comparatively small excretion of urea. The phosphates, which, as such, are now introduced into the system when water is drunk, but are taken in in

some quantity when beer is used, appear in the latter case to be increased, though the quantity excreted does not equal that which has been introduced with the beer. When beer is drunk, more phosphate of magnesia and less phosphate of lime passes into the urine; yet only about the tenth part of the first-named salt which has been taken with the beer appears in the urine. Potash is taken in in unequally large quantities with beer; it is also increased in the urine, but not in proportion to the quantity taken in. Some influence on the metamorphosis of the tissues must be ascribed to beer, as almost all the products are either absolutely or relatively diminished in urine: chloride of sodium is an apparent, urea a doubtful exception.

The quantity of carbonic acid excreted by the lungs is also diminished by drinking beer; it diminished from an average of 4·10 per cent. to 3·80 per cent. of the expired air.

Boecker has also examined the proportion of solid constituents, and of water in three young healthy men; he found an increase of the solid constituents, both in the corpuscles, the serum, and the fibrin. ('Prager Vierteljahrschrift,' 1855, vol. ii.)

Action of Liquor Potassæ on the Urine.—The action of liquor potassæ on the urine in health and in certain diseased states has been investigated by Dr. E. A. Parkes ('British and Foreign Medico-Chirurgical Review,' January 1853.) We shall now give an abstract of his experiments in the healthy state of the urine.

The experiments were performed on a healthy individual, aged 33. Dr. Parkes first examined the effect produced on the sulphuric acid of the urine; the food taken being ordinary mixed diet. The following are the averages obtained from the observations made.

1. *Urine secreted during the night, and passed in the morning.*

Average amount per hour (mean of 155 hours), ℥i. ʒvj. ℈vij.
Average of solids in 1000 parts (38 observations), 37·27.
Average of sulphuric acid in 1000 parts (42 observations), 1·4608.

2. *Urine secreted during twenty-four hours.*

Average amount in twenty-four hours (18 days' observations), ℥xxxix. ʒvij.
Average per hour, ℥i. ʒv. ℈i.
Average of solids in 1000 parts (16 observations), 35·41.
Average of sulphuric acid in 1000 parts (16 observations), 1·199.

The amount of sulphuric acid bore no relation to the amount of solids. A very concentrated urine contained more solids and more sulphuric acid than a very dilute urine; but beyond this no rule could be laid down. Sometimes the solids were in great quantity (48·21 per 1000), and the sulphuric acid in small quantity (0·991 in 1000); sometimes the solids were only 23·55 per 1000, and the sulphuric acid 1·306.

Certain circumstances had an influence on the excretion of sulphuric acid.

1. *Time of year.* The average of sulphuric acid in the urine was apparently greater in the cold months (March and April) than in the hot months (July and August); in the former, amounting to from 1·434 to 1·7; in the latter, from 1·170 to 1·24. The quantity passed, however, in twenty-four hours was nearly the same. In April, three observations on the urine of twenty-four hours, shewed the average flow to be 39 oz.; and the average sulphuric acid 26·78 grains. In five experiments in August, the average flow was 44½ oz.; and the sulphuric acid nearly 24 grains.

2. *Time of day.* During the night, the average amount both of water, of solids, and of sulphuric acid (especially of sulphuric acid) was greater than in the urine of twenty-four hours. This occurred when the heartiest meals in the day were taken in the evening; but when, on eight occasions, the principal meal was taken at 2 P.M., the average amount of sulphuric acid in the night's urine was 1·196 per 1000, or precisely the average of twenty-four hours.

3. *Exercise.* The amount of sulphuric acid was increased by exercise; and the effect lasted a considerable time—at least thirteen or fourteen hours.

4. *Food.* The increase in the sulphuric acid after food was perceptible in two hours, and continued to increase for four or five or six hours, after which it fell. Dr. Parkes states that the increase appeared more marked after meat than after bread; this is opposed to the experiments of Dr. Bence Jones. The effect of food and violent exercise together was to cause a great excretion of sulphuric acid, amounting on one occasion to 3·342 in 1000.

5. *Excess of liquids.* The experiments on this point were not sufficiently numerous. When from twenty to thirty ounces of weak tea were taken beyond what the system required, there was an inconsiderable increase of the sulphuric acid.

Having thus examined the variations in the sulphuric acid, Dr. Parkes investigated the effect of liquor potassæ on the water, sulphuric acid, solids, and on the acidity of the urine. Eleven experiments were made: the dose of liquor potassæ being in one experiment, ℥ss; in seven, ℥i; and in three, ℥ij. In six experiments, a large quantity of urine was passed within two hours after the potash was taken; in the other five experiments, this effect was not produced. The large flow of urine followed the introduction of liquor potassæ into an empty stomach; but when it was taken from three to five hours after food, it probably entered into combination with the free acids present in the stomach—the resulting salts then producing their own action, and not that of liquor potassæ. The average quantity passed per hour when liquor potassæ was taken, in six observations, was ℥v. ℥vi.; when *no* potash was taken, ℥i. ℥vi.; the highest single observation (of 600) when no potash and an ordinary amount of fluid was taken. ℥iij. ℥ij. In five out of the six observations, the urine had a faint acid reaction.

In any given quantity of urine thus increased, the amount of solids and sulphuric acid were greatly below the average; but the actual amount of sulphuric acid was increased, while that of the solids was decreased. In an average of six observations after taking liquor potassæ, there were excreted of

Water, 140 oz., or 100 oz. 3 drs. above the normal average.

Solids, 597·16, or 80·63 grains below the normal average.

Sulphuric acid, 32·341, or 9·491 grs. above the normal average.

From an examination of the solids in two experiments, the following results were obtained: there was no uric acid; urea was in small amount; there was a large amount of extractives, soluble after evaporation in water, alcohol, or acetic acid. The ratio of fixed saline matters to the organic matter was extremely large, and sulphate of potash and chloride of sodium constituted the chief proportion. Phosphoric acid was in moderate amount. Although the proportion of chlorine to the solid was relatively large, it did not appear to be absolutely increased.

Dr. Parkes thus sums up the effect produced by liquor potassæ on the healthy body.

"If this remedy is taken soon after meals, its action is that of an antacid. It combines with hydrochloric or with lactic acid, and then, doubtless, passes into the circulation. What appreciable effect it now produces is not indicated in the tables above given, but it does not increase either the water, solids, or sulphuric acid of the urine. If the liquor potassæ be taken into an empty stomach, it passes unneutralised into the circulation, and probably through the veins; in so doing it must produce an effect on the walls of the capillaries and and small veins, but the extent of this cannot be known. As much as ℥ij. have been taken with only four ounces of water, without causing epigastric pain or uneasiness (although it produced considerable temporary scalding of the mouth and throat), and without apparently producing any local effects in the stomach. In usually from thirty to ninety minutes after its entrance into the circulation, an increased flow of slightly acid urine occurs, which contains the whole of the potash, organic matter differing considerably from that of ordinary urine, and a relatively large proportion of sulphuric acid; the phosphoric acid and the chlorine are less changed. Perhaps an organic acid (not uric, and probably not hippuric) is also present. The explanation of these facts, is, that an albuminous compound, either in the blood itself or in the textures, has become oxidized; its sulphur, under the form of sulphuric acid, has united with potash, and with possibly the changed protein-compound, is poured out from the kidneys. This oxidizing effect of the liquor potassæ is no doubt assisted by exercise and by copious draughts of water; but in the above experiments, exercise and fluid were abstained from, in order not to complicate the results. The amount of albumen or fibrin destroyed by one drachm of liquor potassæ cannot be considerable, but if the potash were continued in large quan-

tities, oxidation could probably be pushed to any amount. The nitrate and acetate of potash did not in a *healthy system* have the same effects.

"After the increased flow of urine, the quantity passed per hour falls slightly below the standard. It appears to resume its ordinary composition, but its exact condition at this period has not been determined. Some observations on urine in disease would lead me to infer that the uric acid will be found to be increased.

"Such were the effects of liquor potassæ on the urine. The effect produced on other excretions was not obvious. The skin and the intestines appeared quite unaffected, and as all the potash was found in the urine, the reason of this is easily understood. In most of the experiments there were no subjective symptoms of any kind. On two occasions, there was rather sharp frontal headache, languor, depression, slight lumbar pain, and aching of the legs, after the large flow of urine. On the night of the 15th, when the flow of urine, which was proceeding at the rate of ℥iss. per hour, was augmented in two hours and a half by ℥xiv., and no fluid was supplied to the system, the pulse became perceptibly small (almost thready) and slow; it remained equal and regular—there was no thirst, no shivering, and no nausea: the skin was dry and warm. In six hours the pulse had quite regained its force and frequency, and the other symptoms had disappeared without any fluid having been taken.

"After the experiments were concluded, the general health did not appear impared; it was, if anything, better than usual."

The experiments of Dr. Parkes on the action of liquor potassæ of urine in diseased states we shall refer to in speaking of the Pathology of the Urinary System.

Formation of the Acid Sediments in Urine.—Zimmermann, in his *Archiv.*, makes the following remarks on the formation of acid deposits in the urine.

The free acid, which is the cause of deposits in urine, is neither acetic nor lactic, but oxalic; hence lime has a more important part than has hitherto been assigned to it, as a base for uric and oxalic acid. The author speaks first of the spontaneous urinary sediment. He saw it in specimens of urine, the specific gravity of which varied from 1·0158 to 1·0320, and in which muriatic acid separated at last ·533 per cent. of uric acid. A certain high specific gravity is necessary for the uric acid to be deposited in an amorphous shape. Turbid urine becomes clear by dilution with water; and if urine, which would not otherwise form a sediment, is evaporated to one half or even less, urates and phosphates are deposited on cooling. The addition of such salts as chloride of sodium, sal ammoniac, saltpetre, and sulphate of potash, promotes the formation of a sediment; but the sulphate of soda and magnesia, according to Zimmermann, prevent the deposition of urates, apparently by being retained in solution.

Cooling of the urine is so important a condition to the formation of a sediment, that when urine becomes turbid before it has cooled to the

temperature of the room, it may be concluded that it has a neutral or an alkaline reaction, and that the sediment contains phosphates. On cooling to 43·5 Fahrenheit, a lateritious sediment may be formed in many specimens of urine, although they do not contain 5 per cent of urates. When urine, which has become turbid by cooling, is heated to 120 Fahrenheit, and then allowed to cool again, the highest temperature can be generally found at which the sediment begins to be deposited afresh. But under these circumstances, uric acid crystals are not again separated: a sign that a new acid has been formed.

When urates abound in urine, a very small quantity of acetic acid will produce turbidity; such urine becomes clear on heating and again turbid on cooling. On a further addition of acetic acid, crystals of uric acid are deposited. When urine of this kind is diluted with water, the addition of acid causes no turbidity; which proves that a certain richness in urates is necessary for the formation of a sediment. Lactic, oxalic, phosphoric, nitric, and hydrochloric acids, act in the same way as acetic acid; they all produce, under certain circumstances, the separation of free uric acid. When urine is rendered turbid by a large amount of acids, small quantities produce the same effect; but the converse does not take place. Zimmermann has endeavoured to show that, although a sediment is formed more rapidly after the addition of oxalic than acetic acid, yet no crystals of oxalate of lime are formed, or only when the fluid is also boiled. The free acid formed in urine Zimmermann regards as oxalic acid, not as acetic or lactic, since the presence of matters from which these can be formed, cannot be detected; while uric acid, from which oxalic acid can be formed, is always present. Zimmermann placed uric acid crystals in saline waters; after a time, he found numerous crystals of oxalate of lime. In the lateritious sediment, numerous crystals of oxalate of lime are found: from which it may be concluded that they are first formed after the base has been set free from other combinations, and when the acid has proceeded from another constituent of the urine. If these crystals are not found in this urine, it is either because the urine contains no oxalate of lime, or because this salt does not always crystallise in the ordinary form.

In relation to the development of free acid in the urine, Zimmerman, partly in contradiction to Scherer, makes the following observations. When to urine which became spontaneously turbid, and was also rendered so by hydrochloric acid, he added alcohol, and then acetic acid, the fluid remained clear, and deposited uric acid crystals sparingly. The same occurred when two *grammes* (half a drachm) of urate of potash were dissolved in 500 *grammes* of water: while hydrochloric acid rendered one portion turbid, the other, which had been mixed with alcohol, remained clear. Zimmermann explains this action of alcohol in preventing the separation of uric acid or water, by supposing that it acts as a solvent on part of the soluble constituents of the urine, and that thus a greater quantity of water is available for the solution of the urates.

The influence of saline substances on the separation of the urates is small in proportion as the temperature is high. Zimmermann finds oxalate of lime in the amorphous lateritious sediment before the formation of uric acid has commenced; and the oxalates increase enormously as the uric acid appears. Hence he concludes that the free acid which is formed is oxalic acid. He believes that just so much oxalic acid is formed as corresponds to the lime present; for in the fluid filtered from urine which has deposited a sediment, no oxalic acid is perceptible.

It has to be ascertained (and for this purpose Zimmermann proposes a solution of carbonate of lime) whether, by the addition of a neutral salt of lime to urine which has deposited a sediment of crystals of oxalate of lime and uric acid, the uric acid which is present can be gradually oxidised into oxalic acid; and, further, what are the changes through which uric acid passes, when it is changed into oxalic acid in calcareous saline waters, whether the lime plays an important part, or whether uric acid, combined with other bases, can become oxalic acid in distilled water. The frequent absence of the oxalate of lime in the sediment Zimmermann regards as no proof that his view is incorrect; because, 1. He has not detected it, even when he formed a sediment in urine with oxalic acid: 2. Urate of lime may sometimes be wanting: 3. Circumstances may prevent the crystallisation of the oxalate of lime.

The formation of sediment has importance in regard to the *crises* of disease. Zimmermann asserts that only the *critical* urine is liable to fermentation, while ordinary urine is not so.

If the urine is rendered slightly turbid by the addition of a large quantity of acid, it contains at least 4·33 per cent. of uric acid; if it becomes very turbid, it contains at least 8 per cent. The precipitation of uric acid from urine rich in this acid can be prevented by the addition of certain materials, as alcohol, as well as by matters peculiar to the urine. The disturbance of the urine by hydrochloric acid does not correspond with the spontaneous formation of a sediment; the urine of a patient with pneumonia, containing 1·4 per cent. of uric acid, became very thick on the addition of hydrochloric acid, but deposited no sediment, even after it had been allowed to remain in the cold all night.

Zimmermann further speaks against the idea that urea is formed from uric acid, or rather that uric acid is a necessary preliminary stage of urea, and that, by a somewhat higher oxidation of the albuminous tissues, it is changed into urea. Like others, he does not understand how, even in diseases where the respiration is impeded, there should not be sufficient oxygen to fully oxidate the small quantity of uric acid into urea.

In relation to the connection between the function of the spleen, and the formation of uric acid (which has been rendered probable by Sherer's discovery of uric acid and hypoxanthin in the spleen), Zim-

mermann observes that, according to his observations of ague cases, the formation of uric acid is smaller in them than in persons with healthy spleens (as in cases of pneumonia); and further, that in intermittent fever the quantity of uric acid increases after the paroxysm has been cut short. Both these facts speak in favour of the action of the spleen in the formation of uric acid. The quantity of uric acid also diminishes in relapses, when the splenic tumour or other anatomical changes in the spleen appear. To this view are opposed many cases of leucæmia, in which at least there is an increase of the uric acid precipitate; thus Zimmermann cites a case under his care of hypertrophy of the heart and spleen, with induration and suppuration of many of the lymphatic glands, in which he observed a remarkable amount of sediment in colourless urine. ('Prager Vierteljahrschrift,' 1855, vol. ii.)

Fat in the Urine.—Mettenheimer ('Archiv. fur. wissensch. Heilkunde,' vol. i, sect. 3) has observed fluid fat in the urine in two cases where the patients had for some time been taking oleaginous medicines. Very conspicuous large drops of fat floated on the urine, and he removed spots of fat on paper. The first case was that of a man suffering from cancer of the lung, with great dyspnœa, who had been taking twice daily for several days two tablespoonfuls of cod-liver oil, with tincture of iodine. The subject of the second case was a woman aged 54, who was suffering from a tumour in the loins. Her urine was high coloured, and contained albumen, blood-corpuscles, and pus-globules; when the fat appeared in the urine, she was using an emulsion of hempseed, and rubbing in ointment. Mettenheimer and another healthy man took in the evening several ounces of a fatty emulsion, but observed no fat in their urine in the morning; the fluid was, however, high coloured, and turbid, with fine particles held in suspension, the nature of which does not appear to have been investigated. Cutaneous inunction in no case produced fatty urine. ('Prager Vierteljahrschrift,' 1855, vol. i.)—*Association Med. Journal, July* 6, 1855, *p.* 627.

69.—LITHOTOMY SIMPLIFIED.

By George Allarton, Esq., Sydenham.

[In our last volume we presented our readers with Mr. Allarton's account of his mode of operation. Many objections have been raised to this operation, such as a too extensive division of the membranous portion of the urethra; slipping of the knife into the rectum; rough and too rapid digital dilatation; tearing the membranous urethra by the forceps or stone. In answer to these, Mr. Allarton says]

De Borsa merely cut down upon the staff, *from the bulb downwards*, and then introduced his finger along the staff into the bladder. It is obvious that in doing this he risked wounding the rectum and bursting the prostate by the wedge-like action communicated to the staff by the

pressure of the finger. I *cut up to the staff*, having the *back* of the knife to the rectum, and the forefinger of the left hand in the rectum, with its point resting in contact with the staff as it passes through the prostate. I can thus direct the knife with the greatest nicety to the spot I wish to strike. Having done this, I slit the membranous urethra *up*, and then withdraw the knife, cutting *upwards* as I withdraw it, and thus complete the wound at one introduction of the knife, which occupies less time to do than to describe. I then pass a long probe into the bladder, guided by the staff, and remove the latter. The remainder of the operation is merely the extraction of the stone, which, when of moderate size, gives no trouble, for it follows the finger into the wound, and may be removed without forceps. The smaller of the two calculi accompanying this letter came into the wound, and could have been extracted with the finger and thumb; the larger one presented itself at the wound, but required traction to remove it. As to the urethra being torn from the prostate, or the latter from the neck of the bladder, such could only be done by the most unjustifiable blundering and *forcible traction;* it could *not be done by dilatation*, for each part would be equally stretched, and would rather tend to approximate than to separate. As to my quotation of the *mortality* of the lateral operation from Mr. Coulson, it is amply borne out by the assertions of Sir B. Brodie and Mr. Skey, the former giving 1 in 5¾, and the latter 1 in 5. As to the probable mortality in the *simplified median*, experience will have to decide, as up to the present time it has been, I believe, uniformly successful.

I think I may therefore fairly conclude that an operation which has been hitherto successful, which enables a patient to retain or pass his urine by the urethra almost immediately after its performance, which does not confine him many hours to his bed or to his house, which gives little pain to the patient, and less anxiety to the surgeon, —I say I think I may fairly conclude that such an operation will bear comparison with one which is fatal in 1 out of 5 cases, which causes the patient to lie bathed in his urine day after day, and takes from two to four weeks in getting about; to say nothing of its difficulties and dangers, which are so great that Sir B. Brodie remarks—"The danger and difficulty of lithotomy are so great, that no surgeon would willingly, nor otherwise than as a matter of duty, undertake it;" and Mr. Solly says, after an experience of some thirty-two years in hospital and private practice, "There is no operation in surgery equal to lithotomy in the difficulty of its performance or the uncertainty of its result."

As regards *chloroform*, I am again misunderstood. I object to its use as *unnecessary*, because the pain is not great, and there is always *risk of pinching or tearing the coats of the bladder* in extracting the stone, which I feel convinced is often a cause of death.

As to the patient's assistance being necessary to us, *we have that*

under the influence of chloroform, as in labour, the only difference is that we cannot *command an additional amount* of straining when we think it desirable.

Now for the last, but the reviewer's principal objection—*dilatation.* He says, "We have no particular predilection for incising the prostate, but we carry the knife contentedly into the gland, being fully convinced that dilating it to the requisite extent would, in every respect, be a much more serious measure." Has the reviewer ever seriously considered the real bearing of his remark? Why, in the lateral as in the median operation, *we must have a certain aperture* through which to drag the calculus; and this must be, the stones being equal, the same in each operation, and this aperture *must be through the prostate gland.* Now, I will ask him, which he thinks the safer method—making a hole an inch or an inch and a half in diameter in the urethral centre of the prostate by gentle dilatation, or incising one side of the prostate, and then dilating the incision to an inch or an inch and a half in diameter, or from three to four inches and a half in circumference? He could *but* have the *same aperture for the same stone,* and in distending this incision (one end of which is close to the outside of the prostate) with the forceps, having the stone in its grasp, can he for a moment suppose that he does not burst the left side of the prostate, and even tear the neck of the bladder? Suppose even that he *could* incise one side of the prostate, *two inches,* to dilate that incision would only form a circular hole of eight lines in diameter, or two-thirds of an inch. Now it is obvious that this would not allow a stone an inch and a half in diameter to pass; and the left side of the prostate being *almost divided,* to obtain the necessary amount of dilatation, must tear through the prostate and neck of the bladder. *Here is the great fatality of the lateral operation! Dilatation you must have.* Then commence that dilatation in the urethral centre of the prostate, and you have plenty of gland all round to protect. In my pamphlet I have simply *recorded facts;* I say, *let them be put to the test, and not merely denied.* I will abide the result. *Mr. Hinton* has already tested the operation with great success; and I must refer your readers to his case in the 'Association Journal' of about three weeks back. Every case, as yet, has been out and about in *two or three days,* and until I hear of reverses "In medio tutissimus *ibo.*"—*Lancet, May* 26, 1855, *p.* 544.

70.—*Case of Lithotomy; Operation in the Median Line.* By Joseph Hinton, Esq.—About three weeks since, assisted by my friend, Mr. Scott, of Newport, and my own assistant, I proceeded to operate after the plan laid down by Mr. Allarton. Although, on sounding him in the morning, I had plainly felt the stone, and he himself distinctly heard the sound strike it, we could not detect it when he was placed on the table previous to operating. The

injection of a little water removed the difficulty. The perineum was exceedingly deep; and, on piercing it in the median line, I feared that I must have missed the groove, and accordingly I withdrew the knife, and explored the wound with my finger. I found that the staff had not been reached; this was immediately done, and the incision completed. The urethra being opened, no water escaped. On the first introduction of my finger as a dilator, I immediately felt the stone; but it appeared so small that I could not believe it to be the only cause of his distress. Accordingly, I did not wait to remove it, but proceeded with my efforts at dilatation; in a very short time I found the calculus in the wound, and with one finger in the wound, and the other index finger in the rectum, tilting up the calculus, it was removed without any employment of the forceps. The stone was round, and of about the size of a small horse-bean. The amount of blood lost during the operation was trifling. No other stone could be detected. A sponge was now applied to the wound, and retained in position by a bandage.

To detail the daily progress of the case would be tedious, and without any practical importance. When the patient first passed urine after the operation, a few drops escaped by the urethra; but in less than forty-eight hours this was reversed, and he retained the urine for four or five hours—longer, in fact, than he had done for months. On the third day I allowed him to get up and have his clothes on. The wound appeared almost healed; in fact, he considered himself well. On the subsequent day to the operation he appeared slightly feverish, but this passed off almost immediately. In a few days, he brought over to my surgery the bandages; and he appeared perfectly well.—*Association Med. Journal, April* 6, 1855, *p.* 318.

71.—ON OBSTRUCTIONS IN THE URETHRA ANTERIOR TO THE PROSTATE GLAND, CAUSING RETENTION OF URINE.

By Henry Thompson, Esq., M.B., Honorary Surgeon to the Marylebone Infirmary.

The chief cause of urinary retention, in a very large proportion of the cases which occur in hospital practice, is the existence of a certain degree of permanent or organic narrowing of the urethra, by no means therefore always considerable, but which is temporarily aggravated by the supervening of two conditions, either of which may be present alone, or concurrently with the other. These conditions are inflammatory congestion, and undue muscular contraction. They may occur, but much more rarely, in the absence of any organic constriction of the canal, as they do in some few instances in connexion with other excretory outlets of the body, such outlets being, by virtue of their position, exposed to various sources of injury causing inflamma-

tion; and being all invariably guarded by muscular apparatus, are consequently liable also to the effect of abnormal action on the part of that tissue. We are familiar with the first-named condition, that of inflammatory congestion, when it occurs at the anal extremity of the rectum, as congestion of the hemorrhoidal vessels, constituting a fit of the piles, as it is termed; and with the latter condition, or that of undue muscular contraction at the same spot, as spasm of the sphincter ani. Again, we recognise at the rima glottidis, or respiratory outlet, inflammatory congestion causing fatal occlusion by its resulting œdema; and undue muscular contraction at the same point as closing the aperture, always to a dangerous, and sometimes to a fatal extent, in various lesions of the laryngeal or associated nerves, or of the nervous centres themselves. Precisely similar to these actions are those, which, temporarily occluding the urethral canal by their own agency alone in not very numerous instances, are doubly liable to produce their effect when any degree of organic stricture has previously existed.

Now it is very obvious that the method to be adopted in order to relieve the patient from the effect of obstruction in any one of the different instances referred to, must depend greatly upon what may be the immediate effect of absolute occlusion of the passage, whatever that may be. Thus in the case of occluded rima glottidis, on the one hand, we know that death must inevitably result from the shortest delay or hesitation to afford immediate relief, and we at once make an artificial opening at some point in the passage below; on the other hand, when the lower extremity of the intestinal canal is closed, or nearly so, by either inflammation or spasm, we can scarcely be said to take into account the result in relation to the retention of the fæcal contents, but regard the local distress as the main thing to be alleviated, and accordingly we accomplish this indication by means of a far less active character than in the former instance. And hence, perhaps, we may scarcely at first sight recognise the parallelism of the cases, although it is nevertheless complete, (so striking is the analogy which attaches to the various outlets of the body, whether viewed anatomically or physiologically,) because a temporary unnatural retention of the matters which pass by this orifice is an affair generally of slight import, as compared to the closure of the outlet by which respiration is performed, although when organic occlusion of an intestine exists, the patient ultimately arrives at a condition quite as certainly fatal, although slowly and by consecutive stages. But when obstruction of the urinary outlet occurs, we have a condition of things, not so urgent as in the first instance, but vastly more so than in that which was last described—a condition which has been seen to be in the main similar in character, but intermediate in regard of the hazard to life which it involves.

Let it be granted, then, that urinary retention, in a large proportion of cases, arises from the causes classified in the first division, and

amongst these, that it is most frequently associated with permanent stricture, it follows that the obstruction must be regarded as constituted by the co-existence of two at least of three elements, generally, perhaps, by a concurrence of all three—viz., mechanical narrowing, muscular spasm, and engorgement of the tissue around, partaking more or less of the inflammatory character. The first object, then, of the surgeon's inquiry, on coming into contact with his case, is, to ascertain which of these three has the predominant share in occasioning the difficulty presented. A question or two, answered by the patient, will generally suffice to decide the pre-existence or the non-existence of permanent stricture; while the immediate antecedents of the attack, with observation of the symptoms, will do much to point out the part which inflammation or spasm may play in producing the patient's condition. It is very clear that the remedies which are commonly put in force for the relief of retention are designed to antagonize the three conditions pointed out. What are they? In few words, the principal may be enumerated as follows:—

Opium, by mouth or enema; chloroform; the hot-bath; purgatives; blood-letting; the catheter.

Now, while we have here a list of powerful and most efficacious means for the relief of urinary retention, nothing can be more futile in effect, or more injurious to the patient, than their indiscriminate employment. The routine application of the hot-bath to syncope, or nearly so, repeated doses of opium, or, failing in these, a smart purgative, with a trial of the catheter at any part of the treatment, on the one hand, or the complete neglect of it, on the other, is neither a happy nor a successful mode of combating the obstacles most commonly encountered. Nevertheless, it must be admitted, that the successive application of these remedies frequently forms the scheme of treatment employed, and this sometimes rather from a general belief in their power as remedies for urinary retention, than from any intelligent conviction respecting the specific adaptability of any one or other of them to the particular case under treatment.

On examining this list of therapeutic agents, however, the mode in which each promises to be serviceable becomes at once apparent. Opium and chloroform may exert a most beneficial influence when it is desirable to blunt the function of sensation, and so to subdue muscular contraction, whether voluntarily or involuntarily exerted; and nothing can be more admirable than the effect of these remedies when urethral obstruction is due to, or much complicated with, uncontrollable muscular action. The hot-bath produces its effect both by its sedative and derivative influence, and is therefore applicable as much in cases where inflammatory congestion about the urethra exists, as those in which spasm is the chief agent. But it is in those inflammatory states which are prone to follow exposure to external cold, and the free use of stimulating drinks, that free and rapid purgation, together with cupping in the perineum, are frequently followed

by disappearance of the obstruction. These are the cases, if any such there really be, in which it may be safer in some hands to defer the use of the catheter, since free relief may probably be attained after some delay without it. Bleeding from the arm can never, I think, be really necessary, although to its employment is still attached the weight of high authority under the circumstances described.

The application of the catheter is naturally demanded when the obstruction partakes chiefly of a mechanical character. Of its necessity then there can scarcely, I believe, be two opinions. Should it appear that the patient has for some time experienced a constant difficulty in passing his stream of urine, none, perhaps, will deny the propriety of opposing a mechanical means to the mechanical obstruction. But it may be said, and with truth, that whatever be the nature of the attack, the immediate occasion of retention must consist in a mechanical occlusion of the urethra at some point, whether the cause of that occlusion be vascular congestion or spasm. Undoubtedly it is so, and hence it is that the careful use of the instrument may be advantageously resorted to in almost all cases at the outset of the attack—perhaps I might say, to all, without exception. True the conditions just named, when forming the essential part of the lesion under consideration, may be amenable to other agents, but to none so rapidly as to the catheter, when applied by judicious and practised hands. And it is no small part of our duty, I conceive, to afford relief as soon as possible, to shorten the agonising sufferings of unduly distended bladder, provided no additional risk is incurred by the act. I regard the catheter, then, as the first and chief means to be employed in the cases under consideration, to which all others are to be held subservient and regarded as adjuncts, sometimes of extreme utility, indicating, however, at the same time, those instances in which it may be dispensed with, should special circumstances exist in any case to render its employment very undesirable.

And now in relation to the practical details of its application, I believe that there is no instrument half so efficient or useful, and none which is productive of so little pain to the patient as a well-polished silver catheter. I am aware that in this matter very high authority may be quoted in favour of elastic or flexible instruments. In general terms, doubtless, every man will succeed best with that instrument to which he has been most accustomed, and we may not forget that the flexible instruments were much more in vogue at the period when the authorities referred to acquired their earliest practice, than at the present day, and that thus a practical predilection for them was originally attained, which never could be altogether lost. Nevertheless, what does Sir Benjamin Brodie advise in the treatment of cases of retention from stricture? In the first instance, the use of a gum catheter, and if this fails, a resort to the silver one. But if the latter be the most efficient instrument, surely there is no good reason for not applying it at the outset. If in any class of

affections it is desirable to lose no time, to "put our best foot forward"—to make every effort in order to succeed at once, it certainly must be in those which require catheterism, since failure to succeed at the first attempt almost invariably increases the difficulty of a second, on account of the additional irritation which must, to a greater or less extent, be set up. The general objection to the use of a solid instrument consists, I believe, in the fact, that it is possible to do greater mischief with it than with the flexible instrument; that unless properly used, its point may be run through the sides of the urethra, and false passages may be made more readily than with the elastic gum catheter, or wax bougie. A very good argument truly against trusting a man wholly ignorant of the use of the catheter with one which is inflexible and solid—a reason doubtless sufficient for recommending the use of the gum instrument to a patient whom you may desire to employ the catheter for himself; but certainly no reason at all for depriving the surgeon, whose proper function it is to understand its management, of the silver catheter. Granted that it is possible to do more mischief with a solid than with a flexible instrument, I have no hesitation in saying that the former is in an equal ratio as much more capable of effecting good, if rightly used—is as much superior to the latter in its capability of overcoming a difficulty, as the latter is guiltless of power to do much mischief. The case resolves itself into a solution of these questions:—Does the operator desire to control the point of the instrument he introduces into the urethra, in order to overcome some obstruction there? Does he desire to be cognizant of the exact course it is taking there? Can he derive from its point sensations, appreciable through his hand, which inform him as to the progress of the instrument, or the nature of the tissue it encounters, and which may guide him in directing and modifying the motions he communicates to it? If the answer is affirmative to each one of these inquiries,—and I presume no one will venture to say it should be otherwise.—why should we employ an instrument which bends and twists, so that shortly after its introduction into the urethra, it is impossible to know the curve which it possesses, the direction of its point, or how to obtain those delicate perceptions of position, of the condition of the urethral walls, of the nature of the obstruction, which, with the solid instrument, are so beautifully appreciable, and become so advantageous to the operator. If from any circumstance I feel myself so hopeless of success, that my chance of overcoming the difficulty by the exercise of design and tact in the management of the catheter is gone, I might then be induced to try a flexible instrument, in the faint hope that its point might penetrate, by happy chance, the opening which skill had failed to hit; as the lost rider in a gloomy night and in a strange country, throws the rein upon his horse's neck, and trusts to fate.

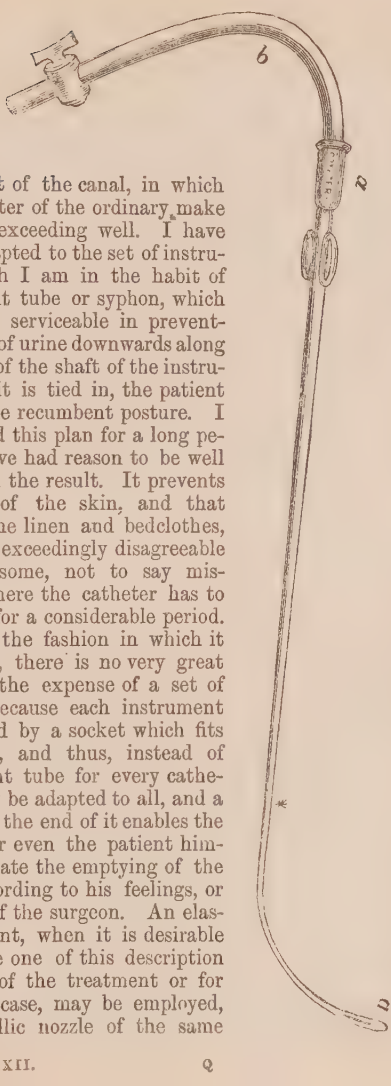
But the use of solid instruments does not imply the use of force. Never was there a greater misapprehension of the grounds on which

their employment is advocated, than that of imagining any part of their value to consist in a capability of being employed with rudeness and force. In a discussion relating to the employment of instruments in urethral obstruction, there is no more important element than the method in which they should be employed. I believe it to be wholly impossible to overrate the necessity for cultivating a light hand, and for abstaining altogether from the employment of the smallest approach to force, in the act of traversing the urethra. I will go so far as to say that the operator is always doing mischief if he inflicts pain, at all events, to any material extent. That is a statement which may, perhaps, be disputed. I know full well that there is nothing which patients, who have suffered much from irritable stricture, dread more than a resort to the catheter, and how they often put off the trial as long as possible, from a painful recollection of former experiences. I hold to my position, nevertheless. I repeat, *the use of the catheter should never be painful*—that is to say, should never be attended by any more than a very moderate and a very bearable degree of pain, or it is not use but abuse; and with these views I firmly believe that the light and proper use of the silver catheter accomplishes the greatest amount of success, while it inflicts the smallest degree of pain.—*Lancet, June* 9, 1855, *p.* 579.

72.—THE TREATMENT OF RETENTION OF URINE.

By Henry Thompson, Esq., M.B., Honorary Surgeon to the Marylebone Infirmary, &c.

There is a point in connexion with the use of fine or small catheters which has appeared to me one of consequence. It is sometimes necessary to use smaller instruments than the ordinary No. 1; and although it is impossible to deprecate too strongly the use of instruments which are even half a size smaller than is absolutely necessary, since the capability for doing mischief always increases in the same ratio as the diminution in the size of the instrument, yet sometimes we do require such for cases of retention associated with very narrow stricture. I have frequently experienced, and I doubt not others have also, considerable inconvenience from some bending of the shaft when employing catheters of minute calibre (for, being hollow, such instruments must necessarily be exceedingly weak)—an occurrence which more or less injures the instrument, and deceives the operator; and I have therefore found it useful to employ for the No. 1, and two sizes smaller which I use, instruments of which the shaft is equal in size to that of a No. 2, the latter three or four inches of the instrument only being of the size indicated by the register. This plan of construction gives firmness to the instrument, while it in no way interferes with the passage of that part of it which has to be introduced through the obstruction into the bladder, unless indeed the stricture be in the



a a. A No. 1 catheter, drawn of about half the actual size. The upper or open extremity is enlarged to fit the moveable syphon, *b*. Each catheter in the set has its upper extremity of exactly the same size.

* Indicates the spot above which the shaft begins to enlarge as it rises towards the upper extremity; below it, the instrument has the uniform size of the register for about three or four inches. The shaft in this case gradually increases in size from No. 1 in this spot to nearly No. 3 at the opposite end, by which additional stability is gained.

b. The bent tube or syphon, with a stop-cock. It fits each catheter in the set; or any gum catheter, if mounted with a metal extremity for the purpose.

anterior part of the canal, in which case a catheter of the ordinary make will answer exceeding well. I have also had adapted to the set of instruments which I am in the habit of using, a bent tube or syphon, which is extremely serviceable in preventing the flow of urine downwards along the outside of the shaft of the instrument when it is tied in, the patient occupying the recumbent posture. I have adopted this plan for a long period, and have had reason to be well pleased with the result. It prevents excoriation of the skin, and that wetting of the linen and bedclothes, which is so exceedingly disagreeable and troublesome, not to say mischievous, where the catheter has to be retained for a considerable period. Made after the fashion in which it is here seen, there is no very great addition to the expense of a set of catheters, because each instrument is terminated by a socket which fits the syphon, and thus, instead of having a bent tube for every catheter, one may be adapted to all, and a stop-cock at the end of it enables the attendant, or even the patient himself, to regulate the emptying of the bladder, according to his feelings, or the wishes of the surgeon. An elastic instrument, when it is desirable to substitute one of this description in any part of the treatment or for any kind of case, may be employed, with a metallic nozzle of the same

pattern, to which the same bent tube may be adapted with equal facility. For the purpose of injecting the bladder also, the same instruments are particularly applicable, as all may be fitted to one syringe or to one extremity of an elastic tube or bottle, if the latter medium be employed.

There is a circumstance very necessary to be remembered by the operator in relation to catheterism in cases of confirmed stricture, which does not appear always to have received that marked attention which its importance demands. I have had several opportunities of exhibiting examples of the condition referred to at the Pathological and Medical Societies during the past year. It is well known that posterior to an old organic constriction of the urethra a considerable degree of dilatation often exists. The canal behind is gradually extended and opened out by the hydrostatic pressure occasioned in the habitual and powerful straining to pass urine which the patient is compelled to exert. Not only, however, does dilatation occur, but frequently also a fasciculated condition of the prostatic urethral walls, very much like that which we see in hypertrophied and fasciculated bladders, so that numerous fibrous bands intersecting each other appear prominent beneath the mucous lining, and interstices of corresponding depth and magnitude are seen between. It is not difficult in examining these to comprehend how that the difficulty of the case is by no means surmounted when the point of the instrument has been insinuated, after much trouble, through the narrow channel of the stricture. We should not then at once push on our acquired success; for here indeed is a source of danger, greater in some cases than any that has before been encountered. Nothing is easier than to entangle the point of a small instrument in the meshes of these fibrous bands, and nothing is calculated to be more mischievous than any laceration in this posterior part of the canal. We cannot be too careful in the management of the instrument after the stricture has been surmounted, not only on account of the possibility of the existence of the difficulty described, but also because the delicate appreciation of an obstacle is far less easy after the catheter has passed through the stricture, and has become embraced by it, since it is in some degree difficult to recognise a slight degree of resistance which may offer itself beyond the point at which the grasp of the constriction interferes with freedom of motion on the part of the instrument.

A preparation recently added to my collection was taken from a case, the particulars of which form an apt illustration of these remarks. It belonged to a patient whom I was requested to see when labouring under complete retention. Attempts had been made to relieve him, both in the hot-bath and out, but without success. I found him almost comatose, and with great depression of the powers of life. He was seventy-three years of age, and had suffered from stricture for many years. The condition of retention had been discovered about twenty-four hours before, but it had probably existed to a greater or less

extent for a much longer period than this. Passing a No. 8 catheter I found the obstruction distinctly marked in the bulbous portion of the urethra. With tolerable ease a No. 1 was carried through it, and here I encountered the obstacle, which, from what I learned, was probably that which had previously presented the chief difficulty. The instrument was felt in the rectum with more than ordinary distinctness, suggesting that it might be beneath the prostate gland, and lying in a false passage. A degree of mobility, however, and the fact that the stricture was one of very long standing, suggested that the point of the instrument was involved in the meshes of a dilated prostatic urethra behind the organic constriction. Accordingly with a little withdrawing and manœuvring of the point, I was enabled to carry it into the bladder, drawing off about thirty ounces of dark and ammoniacal urine. I then tied it in the usual way, with the bent tube attached. The patient dying in a day or two after, from a degree of exhaustion which his age and general infirmities did not permit him to overcome, I found, on careful examination of the specimen, that there was no false passage, but just the condition which has been alluded to. The atrophy, or thinning of the prostate gland from dilatation, especially at its inferior part, accounted for the ease with which the instrument could be felt by the finger in the rectum, and the recesses and dilated orifices seen there had, without doubt, occasioned the difficulty in carrying the catheter into the bladder. It is in these cases, in which the urethra is dilated, thinned, and weakened behind the stricture, that the catastrophe of rupture and urinary extravasation is especially prone to happen when the distended bladder has not been relieved by surgical treatment.

Another practical point to be borne in mind, in approaching cases of retention associated with organic stricture, appears to me to be the frequency with which the immediate cause of temporary obstruction consists in the formation of matter in some part of the perinæum near to the urethra. There may be no swelling visible externally, nor, indeed, any decided feeling of tension to the finger. Of course, when these are present, the case is clear enough, although even then it is sometimes overlooked. When neither are distinguishable, there may yet be a marked tenderness on pressure. The patient may flinch very considerably on placing the finger firmly on the perinæum, anterior to the anus. Heat and swelling may then, perhaps, be detected by introducing a finger into the rectum, and applying it to the anterior wall. If the stream of urine has gradually but notably diminished in size during the last day or two, it increases the evidence in favour of the belief that abscess is the main cause of the difficult micturition. If, also, there are restlessness and fever, with, perhaps, the occurrence of rigors, this view will be corroborated, and there can be little doubt of the necessity which exists for the exit of pent-up matter. A straight bistoury should then be introduced steadily and decidedly, in the median line of the perinæum, a little anterior to the anus, so as to

penetrate the deep fascia, if necessary, behind which it is not improbable, with the symptoms above described, that the matter is located. Very similar signs may be present when the collection is enclosed in the fibrous sheath at the root of the corpus cavernosum of either side; but in this case the swelling which accompanies it dissipates any doubt as to the nature of the lesion. Nevertheless, this state of things may cause retention. During the past year, I had a case in which I relieved that condition by opening a collection in the right crus of the penis, which appeared to be the proximate cause of the difficulty, for the urine soon afterwards flowed freely, and the catheter could be readily introduced. It has been recommended on high authority, to perform the "perineal section" in those cases in which retention depends on stricture complicated with abscess in the perinæum, by which term is intended an operation that consists in passing a full-sized sound or catheter down to the obstruction, and opening the urethra at this point, with the view of making a dissection through the stricture, and subsequently carrying on the catheter into the bladder. Now, granting that this may perhaps be a legitimate proceeding in some few and very exceptional cases of extreme difficulty, I must express my dissent from the opinion that it should be employed in the cases described. I believe it to be extremely rare indeed that retention will not yield, in such instances, to the simple opening of the abscess—not immediately, perhaps—but in the course of two or three hours, or even less, after evacuating the pent-up matter. And this desirable result may occur in two ways: the urine may flow by the natural channel when mechanical pressure is removed from it, and the congestion subsides, as it so rapidly does, when exit is given to pus, in these circumstances; or within an hour or so the urine may at first dribble, and then flow freely through the artificial opening caused by urethral communication with the sac of the abscess. I shall beg leave to request attention to two cases, of which the chief particulars only shall be very briefly given, in illustration of the point in this treatment of retention. They are selected as somewhat typical examples from a number which have come under my own care or observation.

Case 1.—J. D.——, aged fifty-seven, was admitted to the Marylebone Infirmary, Nov. 5th, 1853. He has been the subject of difficult micturition for many years; the stream of urine, always very small, sometimes passes only by drops. During the last three or four months the difficulty has increased, and he has observed swelling and induration in the perinæum. Seven days ago the penis and parts around began to enlarge; three days ago he was compelled to give up work from pain and distension of the belly; the urine passing by drops.

Nov. 6th.—I saw him for the first time. Retention almost complete; supra-pubic dulness reaches nearly to umbilicus; scrotum and penis distended with fluid; considerable tension and heat of perinæum, but no marked prominence. Having made a single attempt to pass a catheter, and finding considerable obstruction about five inches from

the orifice, I deemed it desirable to make a free incision of the perinæum in the median line. It was carried deeply, and a few drachms of dusky-coloured matter followed the knife. A poultice was applied, and soon after urine was observed issuing by the wound. In the course of an hour or two, about thirty ounces had passed away. Incisions of the penis and scrotum were also necessary to relieve extravasation there. Two days afterwards a small stream issued by the external meatus, as well as through the perineal opening, when he stood up to pass urine, as he was now able to do.

In this case the retention, although complicated with extravasation as its result, was undoubtedly primarily due to deep-seated perineal abscess, and the urethra accordingly became patent after exit had been given to its contents. Had he been seen at an earlier period, before extravasation had taken place, and the indurated perinæum then been incised, the occurrence of that unfortunate result would almost to a certainty have been averted.

Case 2.—T. S.——, aged forty-six, a porter. Requested by his wife, to see him on Jan. 16th, 1854, at the Blenheim Dispensary. Stricture of old standing; treatment by dilatation and caustics at different times with more or less improvement. Has twice had complete retention, and relieved himself by hot fomentation. During the last three months his difficulties have been increasing, and the bladder of late has been extremely irritable. Three days ago was carrying on his occupation under much exposure to weather, and has passed his urine in drops, with much straining. Has fomented himself at night with little benefit. Yesterday he was compelled to give up work, feeling his bladder full, and being unable to relieve it.

I found him at his home in great distress, and suffering from unrelieved retention. On examining the parts, some heat, hardness, and tendency to fulness of the perinæum, were detected, but no sign of fluctuation. I attempted to pass a catheter, and, after two or three trials, succeeded in introducing a No. 1 into the stricture, where it was firmly held, but not in moving it onwards with that degree of force which I felt warranted in employing. Accordingly I tied it in as it was, and, placing the patient in position, made a free incision in the perinæum, carrying in the point of the bistoury fully an inch an a half. Three or four drachms of matter immediately issued. I ordered him hot fomentation and a poultice, and promised to see him in an hour, not doubting but that I should be able to pass the catheter at that time. On returning, I found the instrument still held, but with a very little pressure had the satisfaction of carrying it into the bladder, and evacuating forty-five ounces of urine. The subsequent treatment it is not necessary to detail. Tying in one instrument after another, Nos. 5 and 6 were soon reached, and he left his bed. Afterwards the stricture was dilated in the usual manner, and the opening in the perinæum healed, never giving issue to urine at any time, contrary to that which generally happens in these cases.

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I could add several other illustrations of the principle which I am anxious to insist upon, but should be only multiplying similar cases by doing so, and unnecessarily occupying space. That principle is this: *that when perineal abscess is found co-existing with retention of urine, it is very rarely necessary to have recourse to any severer measures than the opening of the abscess, and the passing of the catheter;* and, further, that the sooner the necessary opening is made, the less likely is the patient to become the subject of extravasation at the time, or to suffer from urinary fistula afterwards.—*Lancet, June* 23, 1855, *p.* 628.

73.—ON STRICTURE OF THE URETHRA.

By Professor Syme, Edinburgh.

As a rule, Mr. Syme, in common with surgeons generally in this country, treats stricture by simple dilatation, eschewing the use of caustics and internal incisions. So firmly persuaded is he of the efficiency of the catheter, that he believes there is no stricture, however narrow, which will not admit an instrument, provided it be sufficiently small, and be employed with care and patience. He therefore believes that it is wholly unnecessary to resort to the operation of dissecting through what have been termed impermeable strictures, preferring to insinuate a catheter rather than to employ a knife in these circumstances. Hence he disapproves of that operation usually termed "the perineal section," which has been frequently resorted to in this country for the last thirty-six years. Having proceeded to employ dilatation, if he finds that the stricture rapidly re-appears in spite of it, or that the process involves much constitutional disturbance, he prefers to divide freely the stricture from the perineum, upon a grooved director, performing the incisions in the median line, tying in a catheter for forty-eight hours, and subsequently passing it a few times at about weekly intervals. This proceeding, to which he gives the name of "external division," is stated by him, on the ground of an extensive experience, to be devoid of danger, and generally to be attended with a successful result, a conclusion with which our own experience of it leads us, without any hesitation to coincide.

The observations which first attract our attention in the work of Mr. Syme, have reference to the old question of impermeable stricture. Setting aside actual obliteration, Mr. Syme simply affirms that when urine passes out by the urethra, a catheter of appropriate size may always, with sufficient care, dexterity, and perseverance, be sooner or later passed into the bladder. On this point we yield adhesion to the principle announced, regarding a belief in it as a valuable and important acquisition to the surgeon. No doubt but that the man who most trusts his catheter will handle it most successfully, while he who uses it under the abiding impression that the trocar or the scalpel may be always employed to expiate a failure, will not overcome difficulties

which the former will surmount. We are therefore glad to learn what has been Mr. Syme's later experience in relation to difficult catheterism. He candidly tells us that since he has made his well-known statement respecting impermeability, he has been unable, in the cases of three patients, to pass an instrument of the smallest size from the external meatus to the bladder, by means of manipulation only. This admission exhibits a fact of great interest. Did he puncture the bladder, or dissect through the stricture, in these cases? By no means: let us hear his own account of the proceeding:—"Indeed, on three occasions—one in private, and two in public—I found it necessary to open the urethra anteriorly to the stricture, so as to obtain the assistance of a finger placed in the canal, to guide the point of the instrument." And we subsequently find details relating to a case in which the stricture being complicated with a false passage, it appeared impossible to insinuate the smallest instrument through the contracted channel, until, the urethra being opened immediately anterior to the stricture, the operator was enabled to guide onwards with his finger the point of the catheter through it. We are bound to regard the extreme paucity of exceptions as a striking confirmation of the rule announced by Mr. Syme.

There is another observation which it is impossible to pass over in silence, relating to the part of the urethra which is affected by stricture. The author has on various occasions questioned the accuracy of writers in general who have treated of this subject. It is quite certain that we are even now constantly hearing of "strictures in the membranous portion," and not long ago it was common to speak of them in the prostatic part, or even "at the neck of the bladder." Such remarks always rested upon fallacious impressions received by operators in the use of instruments upon the living subject, and not upon anatomical observations, which, it need hardly be said, can alone determine the question. Discussing the merits of his operation, Mr. Syme writes the following respecting this matter:

"The only sources of danger that can be attributed to the operation, are bleeding and extravasation of urine; and in order to estimate the importance due to them, it is necessary that the true position of strictures should be ascertained. If they existed in the prostatic or membranous portion of the canal, extensive incisions, involving the deep fascia of the perineum, would be requisite; and, accordingly, this has been made a serious objection to my proposal by writers who quote the authority of Sir B. Brodie and others to prove the occurrence of stricture behind the bulb. But the fact is, that the seat of contraction is never so far back, and may be positively limited to that portion of the urethra which extends from the bulb to the orifice. The ground upon which I make this statement is, that in all my experience I never found it necessary to cut further back than the bulbous portion, for the conveyance of a full-sized instrument into the bladder."

Now, with a view to the elucidation of this question, we undertook, some few years ago, a careful and laborious examination of every preserved specimen of stricture in the museums of London, Edinburgh, and Paris, comprising above 300 preparations. This examination confirmed Mr. Syme's observation to a remarkable extent, so far as it related to the non-existence of prostatic stricture, and to the *extreme rarity* of the affection in the membranous portion; but three or four preparations there are in this metropolis, in which, beyond all doubt, it does exist in that situation. And this, as a pathological fact, however slight its importance, may not be altogether lost sight of or ignored.

Any addition to our knowledge of the circumstances which may have occasioned failure after the performance of the operation, is extremely acceptable. Subsequent contraction at the site of the incision has been attributed by Mr. Syme to various causes, for the most part preventable. Among these, he points out more forcibly than ever the undesirable influence of union by the first intention in the incisions which have divided the obstruction. Thus he says—

"The most obvious and certain causes of relapses would appear to be adhesion by the first intention, between the edges of the incision made through the strictured part, which must restore the state of matters that existed previously to the operation. It might be expected, indeed, that the stream of urine passing over the raw surface would effectually prevent any such occurrence; and so I believed must be the case, until taught a different lesson."—*British and Foreign Med-Chir. Review, Oct.* 1855, *p.* 368.

74.—CASE OF SUPPOSED IMPERMEABLE STRICTURE OF THE URETHRA.

By Dr. Kelburne King, Hull.

[Professor Syme has laid down the axiom that "all strictures are permeable." Here was a case which had for years been supposed to be impermeable, but was proved to be otherwise. If sufficient care be taken in the selection of instruments, and patience exercised in their introduction, the cases of impermeable stricture will certainly be infinitesimal in number.]

On the 30th Jan. 1854, I was asked by my friend Mr. Hodgson of this town, to visit G. C. R., a solicitor's clerk, aged about 31, who gave the following account of his case. He stated that since 1845 he had never been free from urinary complaints—the commencement of which he attributed to the use of a solution of nitrate of silver for the cure of a gleet. For the first three or four years, though he suffered a good deal from frequent slow and painful micturition, he did not experience much actual inconvenience, except after committing some

error in diet or other imprudence. In 1849 he contracted a fresh gonorrhœa, and the discharge was so obstinate, that suspecting it might be occasioned by the existence of stricture, his surgeon attempted to pass a bougie, but in spite of frequent trials did not succeed in reaching the bladder. His sufferings increased, but he was not obliged wholly to lay up till the month of October 1850, when, in consequence of some slight excess, he had a severe aggravation of his symptoms. The calls to empty the bladder became very frequent and and painful, and he began to experience fits of retention. He became subject to what was considered a kind of rheumatic fever, with severe pains shooting down his thighs and legs, frequent rigors, low spirits, and general debility. At this time he was for two years under medical treatment, and many attempts were made to penetrate the stricture, but without success. His condition became gradually worse, the fits of retention more frequent and severe, and he suffered dreadfully from neuralgic pains of the limbs and feet. In 1852, this last symptom was thought so urgent, as to require the application of blisters to the feet and ankles. Daily attempts were again made to pass a catheter, but without success; and though the pressure of instruments often caused the urine to flow after their withdrawal, only once during the whole period of treatment was it observed to escape through the catheter. About this time he became acquainted with Mr. Wade's 'Treatise on Stricture,' and at his own request the caustic potass was applied as there recommended. He stated that, when pressure was made for a minute, he felt as if something gave way, and the instrument could be easily pushed in for a considerable distance. A flow of urine usually followed its withdrawal, and in this way his attacks of retention were frequently relieved. These became, however more and more frequent, and could not be relieved by the catheter; the other urinary symptoms increased in severity, his general health became much affected, and his strength greatly reduced. He could hardly sit up in bed, but had to be propped by pillows. By the advice of a physician he left Hull, and went for change of air to a village on the opposite side of the Humber, but not experiencing any benefit, he went to London, and consulted a homœopathic physician. As globules proved ineffectual, he was referred by his adviser to a surgeon, who, on examination, informed him that he laboured under spermaterrhœa. This surgeon made many attempts to pass instruments, and introduced various ointments into the canal, but never reached the bladder. I may state here, that in all these attempts, considerable bleeding took place from the urethra. From London he went to Brighton, where his general health improved, and he returned to Hull in the latter part of 1853, considerably stronger, but suffering as much as ever from his urinary symptoms. In Dec. 1853, he got cold in travelling, and had a severe paroxysm of his complaint. By this time his urine never passed in a stream; he had increased calls every half hour, night and day, but only a few drops dribbled away at a time. Having taken a

single glass of whisky and water, he had some days before I saw him, a violent fit of retention with pain and straining. He got into a warm-bath, and passed a bougie as far as he could, in the hope that, as frequently happened with him, its pressure might cause the urine to pass. This result did not follow, and he observed that some blood passed by the anus. He then sent for Mr. Hodgson, who passed a catheter readily up to the eyes without using the least force. The pressure of the instrument excited a copious flow of urine, but it was noticed that it all passed by the sides, none through the aperture. The patient likewise observed that some drops came away per anum.

On the evening of the following day (30th Jan. 1854), I saw him along with Mr. Hodgson. We found that a full sized catheter passed easily, apparently in the right direction, and as far as the length of the instrument allowed. But no urine came away by it, although he had passed none since morning, and the tumour in the hypogastric region proved that the bladder was full. On passing my finger into the rectum, I found that the beak of the catheter had entered the cavity of that bowel by a false passage, which, on withdrawing the catheter, could be distinctly felt as a roughened surface on the anterior aspect of the rectum, about an inch above the anus. The nature of the case, and the necessity of confinement to the house during the early stages of the treatment having been explained to the patient, he requested a few days to arrange his affairs, and it was the 5th of Feb. before I saw him again. We then succeeded, though not without considerable difficulty, and after a long trial, in passing catheter No. 1 through the stricture into the bladder. A large quantity of offensive ammoniacal urine was drawn off, and the patient watched with great pleasure the stream running from the catheter, which, small as it was, he said greatly exceeded what he had seen for years. The instrument was retained in the bladder for forty-eight hours—a point of great importance in cases of very confirmed stricture. I could then have brought about a seemingly quicker cure by means of rapid dilatation; but if stricture is occasioned by the deposition of adventitious structures which are capable of absorption, it is clear that to procure this absorption time must be given—the effects of rapid dilatation must be purely mechanical—and this sort of dilatation or stretching, though it may be carried to a very great extent in mucous canals, is never permanent, being followed by a speedy return to the original dimensions. As the great object in the treatment of stricture is to obtain a permanent cure, we must discard as much as possible the fallacious assistance derived from mere mechanical stretching, and place our main reliance on those means which promote absorption of the abnormal tissues. There is no way to attain this end in the vast majority of cases, so certain, as the slow and graduated use of bougies. In reference to the frequency with which this operation should be repeated, it must depend on the nature of each particular

case. It ought not to be done so frequently as to occasion pain—twice a week is often enough, and even once a week will in many cases be found sufficient.

I have little more to say regarding the progress of this case. Instruments were introduced at intervals of three or four days. He never had a bad symptom of any sort, and progressed so favourably, that on the 10th April the largest sized bougie could be passed with readiness. He had long before resumed his usual duties, and from that time till the present day (Sept. 6, 1855), he has never had any return of his former symptoms. On dismissing him, I recommended that he should have a full-sized instrument passed once a month for some time—an injunction he soon ceased to attend to; but I took an opportunity lately of examining his urethra, and can vouch so far for the permanence of the cure.

I have entered at considerable length into the details of this case, not because there is anything remarkable about it—considered simply by itself—but because it is a sample of a class of cases sufficiently numerous to call for some remark and consideration. There was originally permanent stricture, combined with great irritability of the canal. The instruments employed for its cure (judging by those I saw) were too large to penetrate it, and the fatal facility of classing it among "impermeable strictures," prevented those exertions which would have long before restored the canal to its normal condition. It also illustrates the utility of the ordinary method by dilatation in a case where the too ready employment of this word "impermeable," had condemned the patient to years of suffering. The means of remedy were simple and at hand—but from a belief that the cure was beyond their reach, they had not been taken advantage of, and I have been induced to select this from many other cases of the same sort which have been brought under my notice, for the purpose of lending what assistance I can in dispelling an illusion which is still too widely spread.

The extent to which the false passage was carried in this case is something remarkable. In spite of the statement made by the patient regarding the passage of blood and "water" per anum, I was not prepared to find that the bowel had been actually penetrated. It is not easy to limit the course of an instrument which has once passed out of the urethra, but I do not think that a bougie or catheter could have been forced through the walls of the rectum, but for the assistance afforded by the caustic potass. This agent has always appeared to me too powerful in its action on living tissues, to be with safety thrust in the dark against an obstacle never very distinctly defined, and which is no more liable to its effects than are the surrounding healthy structures. In ordinary cases its aid is not required, and for extraordinary cases there are other means safer and better, because more under the control of the surgeon. This case presents to us one of the effects which may result from its application in a wrong direction.

There is another point in the treatment of stricture to which I would call attention, in connection with the foregoing. In surgical writings and lectures, we occasionally find it recommended to make pressure against a stricture which does not readily yield. In this way it is said absorption is promoted, the strictured part gradually reduced, and the ultimate cure greatly facilitated before the stricture has been permeated at all. This process has received the name of "tunnelling," and has been recommended on high authority. Now, there are doubtless many strictures which do not admit of penetration at the first attempt, and it may soothe a patient's mind to allow him to suppose that these unsuccessful attempts clear the way for what is to come after; but I have never observed, in my own experience, that any real good has followed from them. In the case related, it was tried for years, but without even retarding or alleviating the progress of the symptoms. However it may be explained, I have never seen any beneficial result until an instrument can be fairly passed into the bladder. I would, therefore, advise no one to linger tunnelling on the threshold of a stricture, but, with all expedition, by patient, steady, and gentle manipulation, strive to penetrate it, regarding that as the first indispensable step towards a cure.—*Edinb. Med. Journal, Oct.*, 1855, *p.* 315.

75.—ON CERTAIN POINTS IN THE TREATMENT OF STRICTURE.

By J. Z. Laurence, Esq., Surgeon to the Northern Dispensary.

Any questions that may arise on the treatment of stricture of the urethra can, in the majority of instances, only refer to strictures of long standing, that have reached a degree of intensity either from their intrinsic nature or from abortive treatment. Exacerbations of the disease from this latter cause may, I think, be not unfrequently traced, not so much to any want of skill of the surgeon, as to his being perhaps wedded to *one* particular class of instruments to the exclusion of all others. Even Liston had such a predilection, and Syme appears to have fallen on the same track. The proper answer to the question, "How do you treat strictures of the urethra?" is, I conceive, Sir B. Brodie's,—"I have no particular method." As this last author justly remarks: "The temper of the urethra varies as much as the temper of the mind." The more I see of disease, the more firmly I am convinced that any *exclusive* treatment of any individual disease is founded upon erroneous preconceptions, and moreover these same preconceptions often lead to an arrogant assumption of a "special" skill in the management of particular maladies, as little warranted by the assumer's knowledge as by his experience. Thus, a surgeon who prefers flexible instruments for the treatment of certain extreme cases of stricture may have it hinted to him that he does so because he is

not sufficiently conversant with the direction of the urethra to guide a fine silver instrument in the proper direction. Such a hint can only display ignorance of the pathology of the disease ; it implies that the direction of the diseased urethra is always certain to be the same as that of the sound one ; this, however, we know to be a false implication. What would one say to a surgeon who extracted, or couched, or divided all cataracts indiscriminately, or to a surgeon who treated all his cases of fracture on one exclusive plan of treatment ? Such empirical dogmatism is as narrow-minded as it is in discord with the varied aspects of disease.

In treating a tight stricture, the best plan is in the first instance to see whether a metal instrument can be passed without giving the patient an inordinate amount of pain, or drawing blood from the canal. Fine silver instruments possess two disadvantages ; firstly, they approach pointed instruments so closely as to require extreme caution and entire absence of force in their introduction. More false passages are made by fine metallic instruments, I have no doubt, than in any other way ; secondly, from their tenuity, their shafts are extremely liable to bend unduly. A bougie made after the plan of Syme's staff would in a great measure obviate this. John Hunter, in his Treatise on the Venereal Disease (Lond. 1788) has suggested something of this description :—"When very small . . . . they (bougies) should be nearly of an equal thickness till within an inch of their smallest end, after which they should taper to a point."

Should you not succeed in introducing a silver instrument, try a gum elastic one ; if not with this, have recourse to a fine catgut bougie. With sufficient perseverance and manual dexterity you are certain to succeed, if not at once, certainly ultimately. A surgeon can make no greater mistake than to wish to get an instrument through a tight stricture at once by an unwarrantable degree of force in its use, and no less a great one if he regards his success as a real success.

Who cannot but admire the patient skill of Sir B. Brodie, when he tells us of a case where he was a whole year before he succeeded in passing an instrument through the bladder ? Another surgeon might perhaps have succeeded in a very much shorter period, with the liability of simultaneously shortening his patient's existence. Obstinate strictures often require to be dilated, if the expression be allowed, "piecemeal ;" that is to say, at the first trial perhaps you may succeed in getting an instrument a certain way into the stricture ; the next time you get it still further in, and so on till you get it through (*i. e.* into the bladder). The catgut bougie is a very useful instrument in extreme cases, it unites two excellent qualities, a sufficient firmness with a fair amount of flexibility to accommodate itself to the tortuous route of a diseased canal. With reference to the constitutional treatment of your patient, I may say that nowhere is "the reciprocal operation of constitutional disorders upon local diseases" more ob-

servable. Repose, attention to diet, and the general hygiene are of the utmost importance.

The following case illustrates many of the above points. (It is given briefly, as the case is not yet complete, and will further be published in detail at some future period.)

G. R. came under my care through the kind recommendation of my friend, Mr. Gayleard, on July 30th. He has had a stricture of the urethra for these last twenty years, and has suffered greatly for the last ten years. No instrument has ever been got into his bladder, excepting on one occasion, when Mr. Gayleard succeeded, five years ago, in passing a fine gum elastic instrument, to relieve him of a partial retention. He then entered Bartholomew's Hospital. During three months silver instruments were used daily, without ever passing through the stricture, and each attempt induced bleeding and pain.

When he came to me he was suffering from symptoms of stricture of the most aggravated description. He voided his urine two or three times an hour, in table-spoonfuls at a time, with a scalding sensation in the perinæum. His rest was broken by being obliged to get up six or seven times in the night to pass his water. This was constantly dribbling from him, and he had been in the habit of soiling his linen, by his straining to make water being so great as to produce a partial fæcal evacuation. A full-sized sound showed the stricture to be 6½ inches down the canal. The finest instrument would not penetrate the stricture. He had, in addition, a perineal fistula, with a good deal of induration matter in the scrotum. There was no evidence of renal disease. Without entering into any details, I may say, that after giving silver instruments a fair trial, I was obliged to relinquish their use; I then had recourse to small gum elastic instruments without success; but on the 13th instant, succeeded in getting a fine catgut bougie into the bladder. Since that time I have advanced up to No. 3. This instrument, conjoined with appropriate general treatment, has hitherto been attended with the best results. He now passes his water in a fair stream, about three times a day, and his rest is no longer disturbed; his incontinence has left him.

Now I believe that any well-informed practitioner would have benefited this patient long before, had his method of treatment been varied to the exigencies of the case.

The questions that have been raised upon the *curvature* of urethral instruments have, within certain limits, been exalted to an undue degree of importance. The anxiety to obtain an instrument of the precise curvature of the urethra, is a misplaced one, because, in introducing such an instrument, you successively introduce portions to whose curvature the portion of the urethra they are in contact with does not correspond. Besides, a preservation of normal curvature is presupposed, which, in strictures of long standing, there is little reason to hope for. Mr. Quain generally passes fine elastic instruments *straight* into the urethra, and this, I believe is much superior to passing them in bent.

Any person who has had experience in the treatment of strictures knows that there is a class of cases in which, after dilatation has been carried to a certain point, no further progress can be made. This form Mr. Syme has specially alluded to as the "unyielding," in which, "though dilatation may be carried on to some extent, it is sooner or later arrested by resistance of the tough texture at the seat of contraction." To this species of the disease the treatment by *caustic* or *incision* is applicable.

The treatment by caustic has, to a certain degree, lost ground; I apprehend more from the method in which it is usually applied, than from any intrinsic demerit of its own. "Much of the obloquy that has been heaped upon cauterization has unquestionably been occasioned less by the action of the caustic, than by the unskilful mode in which it has been applied," are the words of Mr. Benjamin Philips. He incised the urethra before applying his porte-caustique to the stricture.

The method usually followed by Surgeons, is to arm a tolerably full-sized wax bougie, by inserting into a cavity made in its termination some scraped caustic, and then to pass the instrument, thus armed, down to the stricture, against which it is held in close contact for half a minute or so. A little consideration shows this to be a clumsy, unsurgical proceeding. There are two very obvious objections to it. 1. Only the mouth of the stricture is reached by the caustic. 2. There is a great risk of fragments of caustic dissolving and flowing into the portion of the healthy urethra immediately in front of the stricture. The method of cauterization by the porte-caustique is less objectionable in these respects, but implies a degree of dilatation which would render its utility doubtful.

"Whenever caustic is frequently employed, you are in danger of creating a false passage, in consequence of the dissolved caustic flowing to the lower part of the urethra, and destroying the parts unequally."

I believe that the method I am now about to describe is free from these objections, and will afford surgeons a wider scope of testing the curative powers of caustics, than they have hitherto enjoyed.

If the point of a catgut bougie be immersed in nitrate of silver in a state of fusion in a platinum crucible, it will be found to swell up and partially char; but I find that the addition of a small quantity of water prevents this, and that by twirling round the end of the bougie in this liquid you may get its termination coated very evenly with a fine layer of the caustic. It requires a little practice to hit off the precise quantity of water to add, but I have now succeeded in arming any number of bougies easily and expeditiously in this way. The mode of application is this: Pass a full-sized straight catheter with one terminal aperture (such as I have described in the 'Association Journal' for May 5, 1854) completely *down* to the stricture; then pass the armed bougie

(having previously marked off with a scratch of the nail the extent you wish to project it) through the catheter *into* the stricture; the whole track of this latter may then be freely and equably cauterized by gently rotating the bougie. In this way I have employed the nitrate of silver with advantage. It will be seen that the only amount of dilatation that this method of cauterization presupposes, is that which is sufficient to admit the finest catgut instrument,—a degree always attainable by moderate skill and patience. I find that the operation is easy to perform with the simple apparatus I have mentioned. Mr. Coxeter, however, is at present engaged in adapting the principle to a special instrument for the purpose; but I am not prepared to say that it will thereby acquire any additional superiority or not, although, from what I know of Mr. Coxeter, I presume it will.—*Med. Times and Gazette, Sep.* 1 *and* 29, 1855, *pp.* 210, 316.

76.—*Lubrication of Catheters, &c.*—The practical Surgeon can afford to regard nothing as insignificant which can exercise the slightest influence on the result of his treatment. Although not a matter which generally claims much attention, we observe that several of our Hospital Surgeons, and those, too, among our best, are very particular as to the kind of grease which they employ for smearing catheters, &c. A moment's consideration will, indeed, convince any one, that the question of preference is one of some importance. To say nothing of pain, &c., to the patient, the difference between a well-lubricated urethra, and one which is not so, may not unfrequently decide the success or failure of the attempt at catheterism. The objects to be gained by lubrication are several:—1st. Mechanical friction is diminished; 2ndly, the mucous membrane is shielded and rendered much less sensitive; 3rdly, the mouths of follicles, crypts, &c., are filled; 4thly, the prevention of irritation to the mucous membrane prevents also spasm, a circumstance which, as the muscularity of the urethra is now generally admitted, is of the greatest consequence; 5thly, the mucous membrane is rendered (mechanically) supple, and the chance of its laceration or abrasion is very much diminished. Now, in order that these intentions be well fulfilled, it is necessary that the grease used be of a kind likely to be carried with the instrument down the whole tract of the urethra. It must, therefore, possess a certain amount of cohesion, and not be easily rubbed off. The ointment used for this purpose at St. Bartholomew's and several other Hospitals, consists of equal parts of olive oil and fresh lard, at others, castor oil is employed. We are inclined on the whole to give preference to the latter. When cold, it is very viscid, and adheres well to the catheter, and it loses its viscidity just at the proper time, as it becomes warmed by the instrument and the urethra. It keeps much better than anything containing lard. Olive oil is much too liquid, and should never be used. If the urethra be known to be very irritable, it may be well to adopt a

plan to which we observe Mr. Wormald often resorts, of employing two instruments, the first of which is withdrawn just before touching the stricture, being used merely for the purpose of lubricating the canal and the second again, well greased, is carried onwards.—*Med. Times and Gazette, July* 21, 1855, *p.* 63.

77.—*Apparatus for Injecting the Bladder.*—[Mr. Wormald of St. Bartholomew's Hospital, connects the catheter with the syringe by means of a few inches of India-rubber tubing. This prevents all jarring of the instrument. Mr. Collingwood of Camberwell Green, uses a little apparatus for the same purpose, and which is a still further improvement.] Its principle is the employment of hydrostatic pressure instead of a syringe. It consists of a piece of elastic tubing, the size of a quill, and about four feet long, to one end of which a little India-rubber funnel is attached, its opposite end terminating in a widened opening. The latter is fitted over the end of the catheter, which it grasps tightly, accommodating itself to any size. When all is ready, the funnel end is held up at arm's length, and water is simply poured in from a jug. The pressure of the column of fluid suffices to fill the bladder, without the least shaking of the catheter, or other inconvenience. If it is wished to empty the bladder again, all that is necessary is to let the funnel fall into a proper utensil. Besides those just mentioned, the apparatus has great advantages in simplicity, cheapness, durability, &c., over the syringe, and might well take the place of the latter in lithotrity cases. It may easily be carried in the waistcoat pocket, and there is nothing in it likely to excite the fears of the most timid patient. It possesses a further merit of being easily convertible to other uses than that for which it was originally intended; as, for instance, in evacuating the female bladder; if the tube be fitted to the end of the catheter, the urine may be conveyed away by the flexible tube, without any need for introducing the utensil into the bed.

Mr. Collingwood's little apparatus is, we believe, kept by most instrument-makers; those which we have been shown have been made by Mr. Bigg, of St. Thomas-street.—*Med. Times & Gazette, June* 16, 1855, *p.* 595.

78.—*Method of Removing Foreign Bodies from the Urethra and Bladder.*—Mr. M. H. Collis recommends incision in the mesial line, in front of the anus, for the removal of foreign bodies from the bladder. He says: "The membranous part of the urethra is not more than an inch to an inch and half distant from the verge of the anus; hence we can strike it with ease and certainty, when the perinæum is in a healthy condition. By drawing the rectum down with the forefinger, while an assistant raises the bulb towards the pubis by the staff, the knife can be inserted with safety to the depth of an inch or so in

the mesial line, and then, by depressing the curve of the staff, the point of the knife comes directly in contact with the membranous portion. If the incision be made accurately in the mesial line, no vessels will be wounded; and as the membranous portion only is opened, there can be no extravasation of urine forwards. The incision in the integuments might be enlarged by commencing it further forwards, if necessary, to give room for the extraction of a larger substance, or for the introduction of the finger and forceps together. . . . Even when the fragment of catheter or other foreign body has slipped into the bladder entirely, the central incision would seem to be the easiest and least dangerous operation for extracting it."—*Association Med. Journal, July* 13, 1855, *p.* 652.

79.—INJURY TO THE PERINÆUM: RUPTURE OF THE URETHRA, WITH EXTRAVASATION OF URINE.

By John Shepherd Fletcher, Esq., Manchester.

[The patient, who was aged 29, was passing over a trap door when it gave way, and he fell with the perinæum on the edge of the hard flag.]

I saw him in fifteen minutes after the accident. He had then passed a large quantity of blood and urine, and was still bleeding very freely from the urethra; he was faint from standing, and had some pain in the perinæum, but no swelling, and but little tenderness, without any desire to pass urine. I made an attempt very gently to pass the catheter, but could not succeed, as it was obstructed near the prostate. I withdrew it, and ordered tepid fomentations, with an opiate; and saw him again in about two hours. The bladder was now much distended, causing considerable pain, and strong desire to pass urine. He had no swelling in the perinæum. I again tried to pass the catheter, and succeeded, by using a large instrument with the utmost gentleness, keeping it in the median line, and against the upper wall of the urethra. I could distinctly feel, however, that it passed through a long track of apparently torn passage. The bleeding had continued very free. I drew away twelve ounces of normal urine, unmixed with blood. The patient was ordered to allow the catheter to remain in, and to continue to use fomentations and opiates.

[On the third day he had passed a restless night, there was pain on pressure over the hypogastric region. There was not the least swelling to indicate extravasation. He was ordered a saline mixture, calomel and opium pills, and hot fomentations. In the evening the catheter got displaced, and then there was a return of the hemorrhage. On the fourth day urine passed freely by the instrument, pulse 120, abdomen tympanitic. In each iliac region there was a slight puffiness; in the evening the swellings in the iliac regions were larger, but there was not the slightest swelling in the perinæum, or in the

neighbourhood of the prostate, and he seemed much better. On the fifth day he was worse, and had constant delirium. There was no swelling in the perinæum or scrotum. On the sixth day he was in every respect worse, the urine passed by the catheter in normal quantity. On the seventh day he died, no swelling having appeared in the perinæum or scrotum up to his death.]

Examination of the Body, thirty-six hours after death. Putrefaction was rapidly going on in and about the pelvis. There were vesications and great swelling of the scrotum and neighbouring parts; but this was altogether the result of putrefaction since death, as not the slightest trace existed a short time previously. On cutting through the abdominal walls, we found, immediately behind the recti and other abdominal muscles, a large quantity of thin-looking pus, mixed with some blood; this extended upwards into the sheath of the rectus muscle on each side, and was contained between the posterior surfaces of the abdominal muscles in front and the transversalis fascia and peritoneum behind, on each side. It had, in extending backwards, separated the fascia and peritoneum from their attachment to the inner surfaces of the posterior portions of the transversalis muscle; hence the doughy swelling, extending as far as the loins, noticed on the day preceding his death. Below, the fluid could be traced as coming from behind the pubis, having the central portion of the transversalis fascia internal to it, and the posterior surface of the symphysis pubis, covered only by periosteum, in front of it. On injecting the bladder, by means of a catheter along the urethra, fluid was seen to escape slowly immediately behind the pubis, from the neighbourhood of the membranous portion of the urethra. There were traces of very extensive peritonitis, with flakes of lymph one-fourth of an inch thick. On cutting into the perinæum, we found that around the urethral bulb there was much effused blood; and from the bulb to the prostate gland, which was itself normal, the urethra was torn, there being no distinct canal, but a sort of sac, bounded by softened cellular tissue, infiltrated with blood.

Remarks.—The preceding case presents some features which are not of frequent occurrence. It is a striking example of the results to be looked for from an injury to that part of the urethra behind the anterior portion of the deep perineal fascia, and is instructive as to the symptoms following such an injury, as well as to what would, in another similar case, be the most appropriate treatment. It will have been observed, from the account given of the *post mortem* appearances, that the extravasated urine did not take its most usual course after injury to the urethra with the escape of urine; this usual course being, that the urine escapes under the superficial perineal fascia and is by this fascia directed forwards under the superficial fascia and integument covering the scrotum; whence, continuing its course, it finds its way under the superficial fascia of the abdominal walls, where it is found outside the external oblique muscles and

their tendons, between them and the superficial abdominal fascia. This is the direction taken by urine escaping from all injuries to the urethral canal anterior to the front layer of the deep perineal fascia, and also from laceration behind that fascia, if it as well as the urethra should be injured. In all these cases, the fact of urine escaping is quickly made manifest by the swelling, first in the perinæum, then in the scrotum, and afterwards on the lower part of the abdominal walls; and it is almost too well known to need mention here, that the only hope of safety to the sufferer is by free incisions into the perinæum and other swollen and perhaps gangrenous parts.

It is not, however, especially to this class of cases that I am desirous of calling attention, but to another and much rarer form, of which the case I have just detailed is an example, where the injury to the urethral canal is behind the front layer of the deep perineal fascia. The course taken by the extravasated urine is altogether different, and does not cause any swelling in the perinæum to call our attention to the fact that urine is escaping from its proper channel, and causing that destruction which we know to be the result wherever it escapes. This variety, although the least frequent, is by far the most dangerous in its results, as, in the first class of cases, recovery may be hoped for, and will frequently occur, without even the aid of the surgeon's knife; but, in these cases, such a result will never take place unless through the most timely and energetic treatment.

To understand fully the two courses which extravasated urine may take, according to the part of the urethra injured, it is absolutely necessary that we should have a clear knowledge of the deep perineal fascia; and as, in some respects, I believe this fascia to be incorrectly, or at least not fully described, in most anatomical works, I may perhaps be excused for briefly giving what I believe the more correct description, so far, at least, as my own dissections show.

The deep perineal fascia, or triangular ligament, as it is sometimes called, is described generally as a strong triangular portion of fascia, consisting of two layers—an interior and posterior—extending across beneath the pubic arch. "The two sides are firmly attached to the rami of the pubes and a small portion of the ischia," becoming continuous and mixed up with the periosteum on these bones. This description is strictly accurate in regard only to the anterior layer, to the lower part of which is joined the superficial fascia of the perinæum, after it has passed under the transversalis perinei muscle; but the *posterior layer* of this fascia I believe to be only a part of the pelvic fascia continuous with the transversalis fascia from above and the obturator fascia from each side, which are only different parts of one continuous membrane. It extends across the back of the upper part of the pubic arch, and is attached by cellular tissue on each side to the margin of the pubis and a small part of the ischia; but it is not lost in the periosteum covering these bones. At its lower part, like the anterior layer, or true triangular ligament, it gives passage to the

urethra, and sends backwards upon it and around the prostate a continuous fascial investment; and, below the urethral opening, it is continuous downwards and slightly forwards, to join with the lower margin of the anterior layer of the deep perineal fascia, where the two terminate in a tolerably distinct margin, from which, however, there is continued a less strong process of fascia on to the termination of the levator ani muscle, which, with the anterior layer or true triangular ligament, completes the division of the perinæum into a superficial and deep compartment, between which this fascia extends as a very strong septum above and a more delicate one below. It was behind this anterior layer of the deep perineal fascia, and the fascia continued from it below on to the levator ani—that is, in the back part of the membranous or commencement of prostate portions of the urethra—that the urethral canal was ruptured in this case; and it will be seen *that the urine would be prevented from coming forward by the anterior layer of the deep fascia, in consequence of which we were without swelling in the perinæum*, previously considered as a constant and immediate symptom of extravasated urine from rupture of the urethra. Prevented from coming forward, the urine pushed back what is called the posterior layer of the deep perineal fascia (but what in reality I believe to be a part of the pelvic fascia), separated it from the back of

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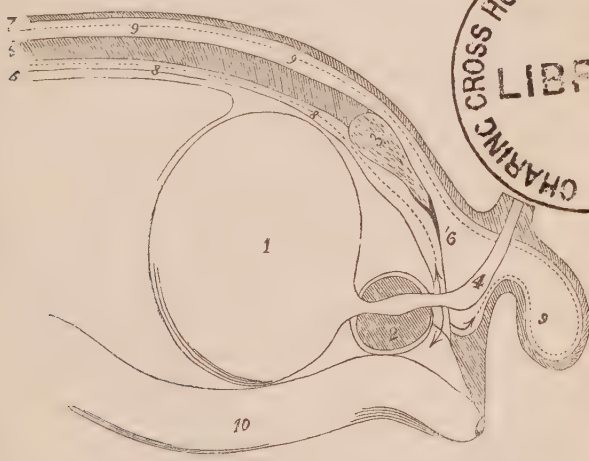


1. Bladder. 2. Prostate. 3. Pubis. 4. Urethra. 5. Abdominal muscles. 6. Line indicating transversalis fascia—the lower part of it representing what is called the posterior layer of the deep perineal fascia. *6. Line indicating anterior layer of deep perineal fascia or true triangular ligament, joined by superficial fascia below, 7. Integument and superficial fascia of the abdomen, 8. Dotted line and arrows, indicating the course taken by the extravasated urine in this case. 9, 9, 9. Dotted line indicating course taken ordinarily by extravasated urine. 10. Rectum.

the symphysis pubis, and then getting behind the abdominal walls (where, it will be remembered, swelling was first present in each iliac region on the third day after the injury) pushed inwards the transversalis fascia and peritoneum, and at last got into the sheath of the rectus muscle. It might also find its way into the areolar tissue around the rectum and at the base of the bladder.

The instructive features in this case I conceive to be the fact that we *may have extravasation of urine from a rupture of the urethra, without any swelling in the perineum*—a fact which I have nowhere seen stated before; that this is far more dangerous in its consequences than the ordinary kind; and that the absence of swelling depends upon the unusual course taken by the extravasated fluid. It will be remembered that the daily reports of this case show an entire absence of swelling from the perineum up to death; and, in the face of the fact that we had a constant discharge of urine in good quantity through the catheter, I scarcely feared, until the end of the second day, any extravasation of fluid of any kind, either blood or urine; but on that day general symptoms pointed to some serious mischief; and the abdominal swelling on the third day was still more serious; its cause was shown by the *post mortem*.

As to the treatment of similar cases, I think the result of this case most instructive; and I should, in any future case where, in injury to the urethra, I had reason to fear escape of urine, even though there be no swelling in the perineum, provided there be general symptoms of extravasation, feel at once called upon to make a free and deep opening into the perineum. In such a case, the incision must not be merely superficial, but must go through the anterior layer of the triangular ligament; and, in order to avoid wounding (should it not be already injured) the artery of the bulb, the incision must be made in the exact mesial line. It may be a question also whether or not, the urine having found its way behind the abdominal parietes, it would not be prudent to make an opening through these, cutting through the integument, superficial fascia, and three muscles. Such a course would, I think, be quite proper; and had it, as well as the deep incision I have spoken of, been made early in this case, it is within the range of possibilities that there might have been a more fortunate termination; but, in the face of an entire absence of swelling in the perineum, and of the improbability of there being much urine extravasated, we did not consider it justifiable. I am now of opinion that I should take a different view of any similar case, and should at once resort to the free and deep opening.

The very rough outline of the position of the several parts will probably aid in conveying a correct idea of the course taken by the urine in both kinds of extravasation.—*Association Med. Journal, Sep.* 21, 1855, *p.* 865.

80.—*Gutta Percha.*—M. Ellefsen recommends a solution of this substance in swelled testicle and fresh wounds, on account of its adhesiveness and making an air-tight covering. He dissolves the gutta percha in bisulphuret of carbon, and spreads the substance over the part affected. It immediately becomes dry and stiff, and forms a thin, tight, and adhesive covering, which loosens at the edges after three or four days, when it must be repeated.—*American Med. Monthly, Jan. 1855, p. 67.*

SYPHILITIC AFFECTIONS.

81.—MODE OF ACTION OF COPAIBA.

By Dr. A. Mercer Adam, Dumfries.

[Recent experiments and observations have sufficiently proved that the active principle of the balsam is chiefly eliminated by the kidneys, and exerts a healing influence on the inflamed mucous membrane of the urethra, by coming directly in contact with it dissolved in the urine. Dr. Roquette, of Nantes, in some very interesting papers, relates several cases which seem to prove incontestably its local action.]

In one of these cases the patient had an orifice in his urethra, midway between the meatus and the scrotum, which was occasioned by his having, when a youth, placed a brass curtain-ring round his penis, which, becoming erect, was injured thereby, and required surgical aid to remove the constricting body from it. The urine of this patient was always voided through this posterior orifice; but when this opening was closed up it flowed freely through the natural outlet. This young man, having contracted gonorrhœa, was treated with copaiva, in the usual way; and Dr. Roquette found that the *posterior* part of the urethra *alone*,—viz., the portion of the canal traversed by copaiviferous urine,—was soon benefited by the action of the medicine. But when the patient was then directed to inject some of his urine,—impregnated with the active principle of the copaiva, into the anterior portion of the canal,—he very speedily became completely cured. Hence Dr. Roquette advises us, in administering copaiva, to give it in such a manner as that it may be eliminated by the kidneys, and may not be carried away by the bowels.

Shortly after reading Dr. Roquette's paper, last winter, a patient came under my care for *chronic* gonorrhœa, whom it was impossible to treat by exhibiting copaiva in the ordinary way, on account of very great irritability of the stomach, and intense idiosyncratic disgust for the drug. I thought at first of adopting Velpeau's plan, and administering the balsam in the form of enemata; but I resolved first to test the correctness of Dr. Roquette's views, and accordingly directed him to inject a weak mucilaginous solution of copaiva into the urethra.

By this means he was completely cured in four days, without experiencing any pain or inconvenience. I have since treated one or two cases of *chronic* gonorrhœa in the same way, and with equal success.

Does not all this seem to warrant and confirm the assumption that copaiva acts locally on the mucous membrane of the urethra, by means of its active principle, which is held in solution in the urine? And if so, may we not yet be able to treat puriform discharges from the urethral and vaginal mucous membranes, by means of weak copaiviferous lotions, instead of by the internal administration of a drug so nauseous and liable to derange the digestive functions?

If further proof were needed that copaiva exerts its therapeutical influence by acting locally on the mucous membrane in gonorrhœa, it might be found in the admitted inutility (by Ricord, Sigmund, and numerous other high authorities) of the drug in those cases of gonorrhœa in the female, in which the disease is confined to the vagina, and does not affect, to any great extent, the urethra, and the parts surrounding it.—*Med. Times and Gazette, Aug.* 18, 1855, *p.* 164.

82.—*Percyanide of Mercury, in Syphilitic Ulceration of the Tongue.*—Mr. Wormald, at St. Bartholomew's Hospital, has recently being employing a saturated solution of the bicyanide of mercury, as an application to syphilitic ulcerations, abrasions, &c., on the tongue. Without speaking very enthusiastically respecting it, he states that he has obtained more satisfactory results from it than from any remedy he had previously employed. The solution is painted over the affected part, care of course being taken that the patient do not swallow any quantity of it. The extremely intractable nature of this form of syphilis is matter of general remark.—*Med. Times and Gazette, July* 21, 1855, *p.* 63.

DISEASES OF THE SKIN.

83.—THE MODERN TREATMENT OF CHRONIC DISEASES OF THE SKIN.

By Thomas Hunt, Esq., Surgeon to the Western Dispensary for Diseases of the Skin.

[During the last eight or ten years, the pathology and treatment of cutaneous affections have been very much improved. Cases of extreme difficulty do still occasionally occur, which are very annoying to both patient and practitioner. It is with a view of lessening their number that the author offers the following remarks:]

It is unnecessary to observe that these diseases are generally of constitutional origin, and that they will very rarely yield

to local treatment; but it is important to remark also, that even those local affections which are contracted by contagion or other local causes, often become, as it were, entangled with other morbid influences, and cannot be treated effectually without due regard being paid to their systemic complications. Thus scabies, porrigo, sycosis, and certain forms of pityriasis, though demonstrably dependent on parasitic development, become, under certain circumstances, not only constitutional but endemic diseases. Hence the well-known difficulty often experienced in curing both scabies and porrigo by topical appliances. The difficulty vanishes when once the general *malaise* is detected and removed. Children crowded together in very large numbers in one habitation and fed on one unvaried diet, almost uniformly become affected by endemic disease of the skin, call it by what name you will. No cleanliness of person or household, no draining nor ventilation, no plentifulness nor purity of food, no local treatment, will either prevent or remedy this wholesale succumbing to parasitic influence. A thorough and frequent change of diet, a change of habits and of air, with active exercise away from the house; there are all that are required to remove the difficulty. I have repeatedly been consulted about numerous cases of scabies and ringworm occurring in large schools, easily cured for a time by local treatment, but perpetually recurring. No trouble has been found when once sufficient changes have been made in the diet, habits, and air. The evils of crowded dwellings are indefinitely multiplied by identity of food and habits. Trampers and costermongers rarely suffer from over-crowded dormitories. They do not feed together, nor breathe nor associate together during the day. The emanations from their lungs and skin are, therefore, less poisonous to each other; the excreta contain a greater elemental variety of *effete* matter; thus, the dose of each individual poison so excreted, becomes less in quantity, and consequently less injurious to the individual by whom it is absorbed. I believe there is a great deal of truth hidden under this view of the case, although I may not have succeeded in expounding it intelligibly.

But with regard to diseases originating in the system from some internal derangement, the case is different. After due attention to the health, a kind of specific or alterative course of medicine is generally required. This is especially the case with the scaly group of diseases, lepra, psoriasis, and pityriasis; and of these specifics, mercury, iodine, and arsenic are the chief. In regard to the latter, I find that those writers who recommend arsenic the most sparingly, actually use it the most liberally, and trust it the most confidently. Those who extol iodine, almost invariably prescribe it in union with arsenic, and sometimes with mercury also. Arsenic, which is the efficient remedy, is thus made to occupy the second place, whereas, in fact it is the principal, and its union with iodine and mercury, often without in any degree adding to its therapeutic efficacy, just serves to make it unmanageable and dangerous. Indeed, my own experience justifies me in

asserting, that if there be any efficient medicine more safe and manageable, in careful hands, than another, it is arsenic united with chlorine or potass; but if there be any medicine more dangerous and unmanageable than another, it is the compound of arsenic, iodine, and mercury, known by the name of "Donovan's solution."

Nevertheless, the unfounded prejudice entertained by the public (and shall I say, in some degree, by the profession?) against arsenic, as a medicine,—a prejudice fostered and augmented by some silly accounts from Germany, lately published in the popular periodicals, and to the truth of which I have ineffectually challenged the Editors to the proof, —this prejudice, I say, throws a practical difficulty in the way of efficient treatment; and I have consequently been for years anxious to discover some medicine not less sinning, but less sinned against, than arsenic, as a substitute for it.

Three anti-squamous, or "anti-scorbutic" remedies have of late been extolled by the Medical press, namely, *Urtica*, *Galium*, and *Cod-liver Oil*. I am surprised that any author should have mentioned the urtica as a new remedy. Fifty, if not a hundred, years ago, the stinging nettle was "*the* cure" for nettle-rash, and other eruptions, used by the country people. The same observation applies to the Galium Aparine, which has had for centuries a similar reputation.

The *Urtica Urens*, (dwarf stinging-nettle,) I tried in decoction many years ago. It appeared to exercise no influence over the system other than that of a mild diuretic, and certainly has no specific power over cutaneous disease. It relieves those aggravations of disease which depend upon imperfect action of the kidneys and the skin; but this is just as easily effected by colchicum, antimony, taraxacum, digitalis, and other vegetable diuretics and diaphoretics.

The *Galium Aparine* (clivers, or goose-grass) probably acts in a similar way. It is certainly no specific for lepra, and I greatly doubt if it will, in any case, supersede the necessity of administering arsenic. Two or three years ago this medicine was, however, mentioned in the periodicals by practitioners of high repute as a remedy for lepra, and I consequently determined to give it a trial. In order that there might be no mistake, I obtained the green and fresh herb from the fields near Kentish Town, boiled it down in as little water as possible, after the method of making decoction of sarsaparilla, and directed the patient to take a wine-glassful, or as much more as the stomach would bear, three times a-day. I took care that the decoction should be always fresh and clear, and when it could not conveniently be prepared for the patient he was supplied with the plant, either fresh or carefully dried, and directed to boil it himself. It was thus administered or prescribed in about twenty cases. Of its effect in ten of these cases I am not able to give any satisfactory report. Of the remaining ten, six were cases of lepra or psoriasis, most of them severe and obstinate, two were cases of eczema, one of acne, and one of lichen. In the scaly class the benefit was the most obvious, but in every case only

temporary. The most successful case was that of a young man who had suffered from childhood from psoriasis diffusa. Living in the country, his mother was recommended, when he was about 12 years old, to try the expressed juice of the "clivers," which he took with such benefit that he thinks it nearly cured the disease; but the symptoms returned under its use. He was ultimately cured by arsenic, which failed until the patient adopted an exclusively vegetable diet. He was of a full plethoric habit, subject to febrile reaction and constipation. I found the decoction of the galium very useful in the intervals during which it became necessary to suspend the arsenical course, and likewise occasionally in conjunction with the mineral itself.

In four other cases of scaly disease, temporary benefit was certainly derived from the galium, but in a fifth case no benefit whatever; and as in no case did it appear to exert a permanent or specific influence on the issue of the treatment, I have of late had recourse to remedies on which I could place more reliance. In other forms of cutaneous disease, as little success attended its use. In one of the two cases of eczema it did no good, and made the patient sick; in the other, the patient got worse under its use. In the case of lichen, some slight temporary improvement was effected; in that of acne no advantage whatever accrued. I should feel disposed to give this remedy as well as the urtica, a much more extended trial if any facts could be brought to my knowledge which would justify such a course.

Cod-Liver Oil.—I have never heard that Cod-liver Oil had been extensively useful in skin diseases, (excepting those of strumous origin,) until I happened to meet with the widely-circulated observations of Dr. de Jongh. Although some of the cases detailed by him are far from satisfactory, and calculated to excite a suspicion that there is a considerable bias in favour of the oil recommended by the writer, as being an article of commerce, yet I resolved to put it to the test of experiment, and I have now prescribed it in about 120 cases of skin disease. It is bare justice to Dr. de Jongh to say, that the success attending its use in dispensary practice fully satisfies me that he has not exaggerated its value. It is not possible for me to form an accurate estimate of the comparative merits of the different fish-oils in the market; but to avoid the chance of adulteration, and to secure uniformity of quality, I have invariably prescribed, in the cutaneous cases herein alluded to, the oil sold in bottles with Dr. de Jongh's seal upon them.

In tubercular affections, as might be anticipated, the most good resulted from the oil. I will first specify a few cases, and afterwards give a general account of the whole.

Acne.—*Case* 1.—*Acne Indurata.*—S. W., a middle-aged single woman, of constipated habit, had been disfigured with the larger and deeper-seated tubercles of acne indurata for twenty years. Her face was literally covered with them, and her shoulders were sometimes

similarly affected. She improved slowly under arsenical treatment, which was continued for nearly three years; but the disease did not get well, and the medicine began to disagree with her. She had a slight sanguineous discharge from the bowels, which might have been occasioned by the drastic purgatives required to keep her bowels open. She also lost flesh, and complained of a troublesome cough. She now desisted from the arsenic, took the cod-liver oil in teaspoonful doses thrice a-day for a month, and at the end of that period, her health was greatly improved, she gained flesh, and no fresh tubercles had become visible in the face after the first week of this treatment.

Case 2.—*Acne Indurata.*—H. C. This was a very similar case to the above, except that the patient was married, though without family, and had only suffered with the disease for two years. There was, likewise, more regular pustulation, and the tubercles were more superficial. She was troubled with occasional head-aches, and menstruated very irregularly. She was treated variously for fourteen months, according as her symptoms varied, and with considerable improvement in the local disease; but by far the most marked improvement was observable under the cod-liver oil, which she has now taken in small doses for two months. There were no indications of a strumous habit about this patient.

Case 3.—*Acne Rosacea.*—W. P., aged 48, temperate and otherwise healthy, had been disfigured for two years with an eruption of red tubercles on his nose and face, with patches of red pimples on other parts of his body. He improved slowly for six months under arsenical and purgative medicines, but recovered much more rapidly when the use of the cod-liver oil was added to the other treatment.

Case 4.—*Acne Rosacea.*—W. R., aged 46, a healthy subject, had been also suffering for about two years from a red eruption of tubercular character on the nose. He took the oil for a fortnight only, with no other medicine, and there was, in this short time, a decided improvement in the disease. He then absented himself, and the result is not known.

Lupus.—Lupus is a comparatively rare disease. It appears in two forms: the ulcerative (lupus exedens) and the non-ulcerative (lupus non-exedens). Both begin insidiously, and generally deceive both patient and surgeon into the opinion that there is nothing serious or permanent, either in that little scab which covers a minute ulcer—which ulcer, left to itself, will assuredly spread until it has destroyed every feature of the face, if the patient lives long enough—or in that little dull red patch, covered with a thin scale, which, left alone, will spread over the whole face and neck. Every therapeutic fact connected with a disease which is seldom cured, and as seldom kills, but makes life miserable, must be acceptable to the profession. Arsenic is the only remedy for lupus exedens yet acknowledged by the profession. A barbarous practice once prevailed of applying arsenic locally to the ulcer. This gives great and long-continued suffering, and does no

permanent good. It does good so long as the arsenic is being absorbed into the blood, and no longer. I have demonstrated, in my work on the Skin, that it may be administered internally so as to destroy the disease. In lupus non-exedens, this is not so sure a remedy.

Case 5.—Lupus Exedens.—J. W., a widow, aged 67. Has suffered from lupus exedens fifteen years. She applied at the Dispensary for Diseases of the Skin, after being under various treatment.

February 6, 1855.—She is in good condition, but not in good health. There is no reason to suspect a syphilitic taint. She has a large family, all healthy, and never had any genital disease. But her nose is gone, and the place it occupied is covered by an ulcer. The soft palate is also ulcerated, and the disease has extended to the bones. Part of any fluid which is swallowed is returned by the nose. There is no offensive odour, except once a month, corresponding with the menstrual period. The catamenia ceased when the disease commenced, at the age of 52. She took the cod-liver oil alone for five or six weeks, at which period she could swallow better, and there was a great improvement both in her general health, and in the appearance of the ulcers.

March 13th.—Continue the oil, and take liq. arsen. chlorid. ℥x. ter in die, with an aperient pill at night.

April 7th.—A piece of bone has exfoliated from the nose. Continue the medicines.

May 1.—The conjunctiva membrane inflamed; eyelids puffed; sore on nostril looks less healthy. Discontinue the arsenic; persist in the oil.

June 5.—Much better; health improving. Continue.

August 28.—Very much better; external sore healed.

Case 6.—Lupus Exedens.—M. R., aged 22, single. A disease which commenced twelve years ago in the nose, now occupies the whole face, which is more or less scarred and ulcerated in almost every part, the non-ulcerated portion being red, hypertrophied, and slightly scaly. Her nose is nearly eaten away, flattened and misshapen, and a face evidently once handsome and delicate presents a most frightful and repulsive appearance.

June 19th, 1855.—Health very good; bowels rather constipated; catamenia regular: the face worse at these periods. The usual dose of chloride of arsenic was prescribed for her, with some compound rhubarb pills.

26th.—Complains of shortness of breath; face puffed. Discontinue the arsenic. Continue the pills, and take a teaspoonful of cod-liver oil thrice a day.

August 28.—She has persevered regularly for two months, taking no other medicine, and using no other means of recovery. The ulcers are all healed; the face less swollen, and less angry-looking. Health good.

In the former case the arsenic was given in conjunction with the oil, and might be said to have shared the credit of the cure. In this case the oil alone appears to have been happily the means of benefit; I say happily, because nothing would rejoice me more than to find, in any case, an efficient substitute for arsenic.

Case 7.—Lupus Non-Exedens.—G. K., aged 54. A tubercular disease commenced in the face when he was only two years of age. It has now extended into the neck, and palms of the hands. The mucous membrane of the mouth and tongue is also affected. After taking the oil for a fortnight, there was a marked improvement.

The progress of lupus is so extremely slow, that I am by no means disposed to draw any general conclusions from temporary improvement; but enough has been said to justify a long and persevering trial of this harmless remedy. I have occasionally applied it locally to the non-ulcerated cases, and I think with benefit.

There is no cutaneous affection in which the cod-liver oil has proved more effectual than in *sycosis menti or mentagra.*—*Med. Times and Gazette, Sep.* 15, 1855, *p.* 258.

84.—PORRIGO *v.* ECZEMA.

By Dr. Benjamin Godfrey, late Surgeon to the Enfield Nursery.

In the treatment of various diseases of the skin of children, the practitioner is never more puzzled than he is with the above disorders. Eczema and porrigo simulate each other, and often render the diagnosis difficult, and the treatment uncertain. It is not my intention to define the exact outward appearances which these diseases present, for that is ably described by many of our medical writers. It is absolutely necessary for us to arrive at the right conclusion, whether porrigo or eczema exists in the patient we may have to examine; for the two diseases require entirely different treatment. Porrigo is to be cured by outward remedies; eczema by internal.

Porrigo of the scalp, or porrigo favosa, is supposed to be the product of direct or indirect contagion. I have seen it develope itself without the slightest trace of contagion. I have seen the scratch of a cat produce a porrigo; a latch of a door, or a burn produce the same, in fact any irritant applied to the surface of an enfeebled child, will call out the postulæ tendency of the system, and produce porrigo.

Several cases have come under my care where purulent scabies has caused porrigo; one case in particular I will mention. A child had scabies on the legs, hands, and stomach, it scratched the irritated pustules, and then rubbed its head,—porrigo was the result. Some years ago, I had a child under my care, who had fallen on the fire; a slight burn on the arm was the result; this speedily healed, and a porrigo appeared on the scalp. A child had a fall, and bruised its leg, a slight purulent discharge occurred, some of the matter was conveyed to the

nose, and the head probably scratched,—a porrigo on the head and nose was produced. In these cases it really was no coincidence, but I believe, absolute contact of matter from the wound to the head, and thus producing disease. How often have medical men seen vaccination produce porrigo; many to their cost, have been unjustly blamed for using supposed diseased matter, whereas the cause was in the child, conveying matter from part to part. Another case I might mention. A child had herpes labialis; the child was seen by its parents to pick its lip repeatedly, and then scratch its head,—in a week from that time porrigo was produced; this porrigo certainly had more the appearance of porrigo-impetiginoides, of some writers, but, nevertheless, true porrigo. It may not be out of place if I should cursorily endeavour to delineate the outlines of the two diseases.

Porrigo first makes its appearance by a slight redness on the skin, which increases day by day until, in the course of a few days, a distinct pustule, or cluster of pustules, makes its appearance. They are small, white or yellow umbilicated elevations, which discharge a thick purulent fluid, which speedily concretes, and forms a crust.

Eczema, in the first stage, resembles porrigo in its general appearance, but unlike porrigo, it appears often in a night, generally in a day or two at most, and then discharges a thin serous fluid, not so quickly coagulating, but more irritating. The colour of the elevation does not guide us in the diagnosis. Often the matter of eczema is as yellow as that of porrigo. In eczema the vesicles appear as if they had just arisen from the surface, accuminated and glistening.

Porrigo is to be cured by external remedies.—In the first stage no ointment is so good as the simple mercurial ointment. In the second stage, where inflammation is less and a scab has formed, the crust is to be removed with a quill or a paper-knife, and the nitrate of mercury ointment applied to the raw surface night and morning. It is in vain to apply any unguent to the incrustation, for that would be in vain; every particle must be removed, before any remedy can be applied.

Internally.—Cod-liver oil three times a day, and a simple rhubarb powder once or twice a week. A simple rhubarb powder should always be given before cod-liver oil is administered, as it prepares the stomach to receive it kindly.

Eczema is to be cured by internal remedies. The unguents used for the cure of porrigo are not only useless, but injurious. They irritate and often cause excessive pain. Iron is the remedy which in no case have I ever found fail. The tincture of muriate of iron from ten to twenty minims three times a-day, according to the age of the child, is the best preparation for this disease. The affected part should be daily washed with oatmeal gruel, and occasionally a little powdered starch with oxide of zinc will aid the cure. Many cases I have cured without any external application, thus proving it to be a constitutional disease only to be eradicated by medicine. I had a child under my care, covered with eczema. Its back, thigh, arm, legs, and head pre-

sented a very pitiable sight. The morbid cuticle dried up and fell off, the secretion formed large scabs, the under surface was entirely raw. I placed this child, aged 4 years, under the influence of the iron, and in a few weeks the child was perfectly cured. Another case I saw ten months ago. A little boy, aged 3 years, a strumous, delicate-looking child, had been under treatment for porrigo for two years. He had ointments of all colours and kinds applied by different practitioners, but all of no avail. His head was literally encased with dried crust and morbid cuticle. On removing a small portion of the crust, the skin appeared red, painful, and irritated, which at once decided it to be eczema. When porrigo has gone on so far as in this case, generally, on removing the crust, the skin underneath is healed. I immediately gave the child ten minims of the tincture of muriate of iron four times a-day, preceded by a little rhubarb and magnesia at bed-time, and repeated once or twice a-week. In two weeks the child's head was cured. In a few months the hair had grown quite luxuriantly and natural in colour. In this case no ointment was used. I have tried several cases for experiment, and all the cases of eczema I have cured by the internal administration of iron. There are several other diseases of the skin which are benefited by iron. I have found almost all vesicular eruptions disappear under its continued use, whether it has been from the beneficial action in restoring the general health of the frame, or whether it has a specific action on that class of disease, I cannot say.—*Med Times and Gazette, July* 7, 1855, *p.* 19.

85.—*Acne.*—Cazenave has recently recommended ammoniacal lotions, which form with the fatty matter of the follicles a soluble soap with an ammoniacal base; the hydrochlorate or acetate of ammonia answers equally well.—*American Med. Monthly, Jan.* 1855, *p.* 68.

86.—*External use of Cod-Liver Oil in Skin Diseases.*—The reader may find in the 'Medical Times and Gazette' for January 3, 1853, page 23, a short notice of the employment of cod-liver oil in certain forms of skin disease, more especially in Eczema. The remedy was then new in this country, and the trials on which our observations were founded had been made in St. Bartholemew's Hospital, by Mr. Paget, to whom it had been recommended by Professor Malmsten, of Stockholm. Since then the oil has, we believe, been extensively used in England, and with much the same favourable results which Mr. Paget obtained from it. We refer to the matter again in order to allude to a paper, recently published by Professor Malmsten himself in a Berlin Medical Journal on the various uses of the fish oils, and more especially on their external employment against intractable skin diseases. The practice of the Swedish physician appears to have

been most successful; and amongst the cases narrated as having been cured are examples of chronic and impetignoid eczema, impetigo, psoriasis, chronic pityriasis, and prurigo formicans. The plan adopted differs somewhat from that we have seen followed in this country. Instead of using the oil merely as an ordinary liniment, the affected parts are directed to be kept constantly soaked with it. If the whole skin be affected, the patient is made to lie in bed; all his body and bed linen being saturated with the oil. This system is continued until the skin is returned to health, the patient being allowed an alkaline bath once a week, but no other washing or change of clothes being permitted. To most people the disagreeable nature of such a measure will constitute an almost insuperable objection to its use. We must remember, however, that Professor Malmsten assures us that he has cured, by its help, cases of the most obdurate and distressing kind. The treatment does not appear to have required, as a rule, more than about two weeks; and is said to have shown a wonderful influence in restoring flaccidity, clearness, and healthy colour to the diseased integument. The majority of cases of prurigo formicans baffle, we suspect, the skill of all our English Dermatologists; and in these the patients would generally be found willing to accept a cure by any possible method, without regard to its disagreeableness. Although this author incurs a little suspicion from the rather indiscriminate recommendation of his remedy, yet, on the whole, we think he well supports his assertions. Speaking generally of his facts, they appear to us to bear out the conclusions which we expressed in the former report on this subject, and which we will again quote:—"The class of cases for which the oil seems most applicable is that of chronic eczematous eruptions, unattended by acute inflammation or general pyrexia. In abating the troublesome itching, which frequently accompanies this disease, especially in old people, it has manifested powers superior to those of any other application with which we are acquainted."—*Med. Times and Gaz., July* 7, 1855, *p.* 8.

87.—*On the Abortion of the Variola Pustule.* By Professor Delioux.—In this paper M. Delioux speaks strongly in favour of the early employment of abortive applications. Mercurial ointment should be freely smeared twice a day over the whole face and upper part of the neck, its application to the latter part acting advantageously upon the accompanying inflammation of the pharynx or larynx. The old need not be washed off before the new is applied, and in this way a layer is kept constantly on. It must be continued until the eruption is found to consist of merely hard, dry, papular tumours. Salivation must be guarded against; but it must be distinguished from the increased secretion of saliva often met with in variola. Although entertaining a high opinion of this application, the author has found patients object much to its use in consequence of its appearance, and its spoiling the linen; and for such he has for the last two years em-

ployed collodion with great success, The pain, some declare to be the consequence of its employment, he believes arises from its being used alone; but if Trousseau's Elastic Collodion be selected, all inconvenience is avoided. This is formed of collodion 30 parts, Venice turpentine 1½, and castor oil ½ a part. When employed at an early stage it imparts a sense of coolness to the part; but if the pustules are ulcerated it causes pain for a few minutes. The contraction produced by the drying of the collodion causes some uneasines, but rarely any pain, and the patient soon gets accustomed to it. Whenever any cracks in or detachment of the collodion are perceived, these must be repaired, and a new layer passed over the whole face—so that more or less collodion may require to be applied three or four times a day. Perseverance is required, but the result is highly satisfactory; for, wherever the collodion has remained applied, the pustules become flattened and effaced, and the skin so regains its normal appearance, that at the end of convalescence the existence of such an affection could not be suspected. Even, when from later application, and occasionally in early, abortion does not occur, the cicatrices are still far more favourable and superficial than they would have been had the eruption been left to itself. If a layer of pus collects under it the collodion should be pricked with a needle to allow of its being gently pressed out. In the Paris hospitals from 30 to 40 centigrammes of corrosive sublimate are added to every 30 grammes of the elastic collodion, and it is said with excellent results; but of this mixture M. Delioux has had no experience.—*Bulletin de Thérap.—Med. Times and Gazette, July* 7, 1855, *p.* 16.

88.—*Turpentine in Carbuncular Diseases.* By Dr. Thielmann.—Dr. Thielmann states that he has employed this substance with great success in a case of malignant pustule, and in a great number of cases of carbuncle, amounting to 342 since 1837. The treatment has been merely local, unless suppurating fever or other general symptoms called for interference. The turpentine was applied in every stage of the disease on a thick pad of charpie, evaporation being prevented by oiled silk. In most cases, a slight burning is at first produced, which only lasts for a few minutes. The epidermis becomes softened, and the mortified parts are quickly separated, without the necessity of the crucial incision. After the separation, it is still continued, as under its influence the healing is rapid. If, after each dressing, (these being repeated night and morning,) the patient complain of a continual burning, the lotion is to be sufficiently diluted with camomile tea, or the dressing is to be performed with this alone. The turpentine is suitable to all sloughy and atonic ulcers. The following is the formula for the preparation of the application:—Mix ℥j. of oil of turpentine with the yolk of an egg, and then add spirit of camphor ℥j., camomile tea lbj.—*Berlin Medicin Zeitung.—Med. Times and Gazette, Sep.* 29, 1855, *p.* 325.

89.—TRAUMATIC ERYSIPELAS, AND OTHER FORMS OF THE DISEASE, IN MILITARY LIFE.

By Dr. James Bird.

Without entering fully into the various divisions of the disease which have been made by different authors, it may be conveniently considered, for the purposes of military surgery, as the external manifestation of constitutional disorder, or an impure state of the blood, caused by impeded assimilation and excretion; or as the direct impression of mechanical or chemical causes, producing inflammation of a part, and followed by purulent or poisonous matter generated in the tissue, from which, when carried by the veins into the general circulation, it may deteriorate the whole blood mass, and be succeeded by constitutional symptoms. The former is the symptomatic, the latter the traumatic or idiopathic varieties. These again, according to the anatomical seat and character of the effused material, may present themselves of simple, œdematous, and phlegmonoid sub-varieties, which are generally the indices of the particular character of the blood lesion, or its comparative capacity for supplying corpuscular or non-corpuscular effused matters capable of organization. Such, too, will be valuable guides in practice as to the amount of antiphlogistic, or tonic and nutritive, treatment that may be necessary in this disease. Simple erysipelas, which more frequently affects the head and face, and is seen sometimes on the trunk of the body, is only accompanied by slight febrile symptoms, and makes its appearance on the cutaneous surface, of a pale rose-red, followed by little vesication, and terminating by desquamation of the cuticle. Its anatomical seat is chiefly in the papillary part of the derma and rete-mucosum. Erysipelas œdematodes, again, either follows, or may accompany the first variety, appears of a yellowish-red or brown colour, and may attack the face and scalp, or appears on the thighs, legs, and genitals. Its seat is in the skin and subcutaneous cellular tissue, and it is more frequently consecutive of anæmic conditions and constitutional cachexia. The swelling is boggy, and accompanied by disorganization in portions of the cellular tissue, very similar to what occurs in the low forms of cellulitis. Erysipelas phlegmonodes, which more commonly attends gun-shot wounds and other injuries, is a kind of diffused phlegmon. It is preceded by rigors and severe constitutional symptoms, to which succeed tingling pain, heat, deep-bright redness, and brawny tumefaction of the part. The local swelling has a marked tendency to run into ichorous suppuration, or gangrenous destruction of the cellular tissue, in consequence of the vascular strangulation by the inter-capillary effused material.

Natural Relation of the Disease.—In the preliminary considerations on the nature of erysipelas I have already intimated my opinion, that its phenomena have a marked analogy with those of the febrile exanthemata, and indicate a relation to gouty, rheumatic, and scorbutic inflammations, in all of which the cœtaneous inflammatory action of

the internal mucous surfaces is a well-marked characteristic. All of them show an unmistakable tendency to a complication with gastric and biliary disorders, and are generally results of the same cold atmospheric humidity, from which an epidemic prevalence of all of them may proceed, as has been well marked during the present season. This relation of rheumatism and erysipelas will be yet more evident from the following comparison of the morbid state of the urine in both diseases, in which there is a very evident increase in the quantities of uric acid and extractive beyond a state of health. The results are indicated in the following tables, compiled from Simon's Chemistry:—

Rheumatism.—A man, aged thirty, whose urine threw down a copious red sediment on standing for two hours, and was 1017·2 of specific gravity.

——	Analysis 1.	Analysis 2.	Analysis 3.
Water.....	971·80	970·20	981·10
Solid constituents	28·20	29·8	18·90
Urea	12·20	9·00	8·00
Uric acid	1·70	1·04	0·56
Fixed salts.....	.....	5·59	2·34
Extractive matter	.....	14·70	8·00

Erysipelas.—In the febrile stage of this disease the urine has all the characters of inflammatory febrile urine. Becquerel made two qualitative analyses of the urine of a man, aged thirty-nine, who had erysipelas. Specific gravity, 1021· to 1023·1. The quantity passed during the twenty-four hours being, in the first and second analysis, 27·0 and 30·8 ounces respectively.

——	Analysis 1.	Analysis 2.	Analysis 3 of healthy urine.
Water.....	965·5	961·9	970·0
Solid constituents	34·5	38·1	28·
Urea	12·5	12·7	12·1
Uric acid	1·2	1·3	0·4
Fixed salts.....	.....	8·2	6·9
Extractive matter	.....	15·9	8·6

Other chemical pathologists have ascertained that, during the acute stage of erysipelas, while the urine presents all the characters of febrile urine, it is at the same time albuminous, and occasionally mixed with blood. These facts have been well established by the examinations of the urine, in erysipelatous cases, made by Becquerel and by Dr. Begbie, of Edinburgh. The presence also of albumen in the urine during the desquamative stage of erysipelas is noticed by Lehmann; and others have found that at this period of the disease, the urine is coagulable and charged with epithelium, as in scarlatina. The temporary albuminuria and the desquamation from the renal tubes, which have been thus found associated with erysipelas, and more particularly when the inflammation of the skin has been of great extent and idiopathic in its origin, are points of great practical importance in regard to this disease. They serve to show that this cutaneous affection, like other exanthematous diseases, is associated with derangement of the renal functions, and that both are coetaneously connected with the same blood lesion, the removal of which is an essential element of successful treatment. The efficacy of the tincture of sesquichloride of iron, which sensibly affects the secretion of the urine, while it restores the healthy nutritive powers of the red blood globules, probably depends on its power of producing these effects. The subject is one well worthy of further observation and experiment.

Treatment.—Such modified differences of innervation and vascular action accompany the varied forms of this disease that no uniform plan of treatment can be applicable to all, and the attendant circumstances of each particular case must be fully considered before an exclusively antiphlogistic or tonic mode of treatment be resorted to. In most cases an union of both will be found the most judicious system to be pursued, and must consist of both constitutional and local means. But as I have already exhausted much time in discussing the general subject I shall confine myself to the detail of a few particular points in connexion with it. The remedial measures must of course consist of both general and local means. In regard to the former, all morbid secretions connected with gastric and biliary irritation must be evacuated by means of small doses of calomel, James's powder, and acetous extract of colchicum, combined with half a grain of opium, followed next morning by castor oil or any other eligible purgative. The impaired functions of the kidneys and skin are to be at the same time restored by means of either the acetate or nitrate of potass, given with the bicarbonate and nitrous ether, converted into draughts of effervescing citrate, by means of lemon-juice. If there be much red sediment in the urine, an ample allowance of beef-tea, to which a few drops of the liquor potassæ have been added, must be freely administered, with solution of quinine, as soon as the febrile symptoms have lessened, and the urinary secretion has been partially restored. The patient, unless plethoric in habit, must at the same time have plenty of nourishing but anti-bilious diet; and when vascular action is of the asthenic type,

an allowance of wine may be necessary. The age, strength, and habits of the patient must also be taken into account. Occasionally both local and general depletion may be necessary. The first can be best effected by means of cupping-glasses, or the scarifications may be effected with the point of a lancet, as practised by Sir R. Dobson. If the disease be of the phlegmonoid kind, and the extent of sero-fibrinous exudation threaten suppuration or the vitality of the part, incisions of from two to three inches in length must be practised, to relieve the strangulation. Various local applications are made use of by various practitioners, such as fomentations of poppy-heads, collodium, solution of sulphate of iron, &c.; but in this disease, as in rheumatism, I have found nothing better, as a lotion, than camphor mixture, with a proportion of vinegar and tincture of opium, applied warm, by means of lint, and then covered with oiled silk or French wadding. Both in rheumatism and in this disease the lotion now recommended will be found useful in relieving the local symptoms, provided proper constitutional means are employed at the same time.—*Lancet, August* 11, 1855, *p.* 119.

90.—ON ONYCHIA.

By John Hamilton, Esq., Surgeon to the Richmond Hospital, Dublin.

Sometimes, in consequence of a tight shoe, the flesh of the side of the nail of the great toe is pressed against the side and upper angle or corner of the nail. Now, Dupuytren observed very truly, that in consequence of this corner of the nail being a little overlapped by a fleshy prominence, the scissors in cutting the nail are prevented from going far enough to cut this part of the nail completely, so that the angle projects in a sharp little point, which irritates the flesh pressed against it, and finally ulcerates a way into it. This is further accomplished by the pressure from above on the arch of the nail, which being flattened and straightened, the sides are forced out. The flesh, therefore, irritated and inflamed, swells, reddens, and ulcerates, and there is a thin fœtid discharge from the corner of the nail; standing or walking is painful; and the pressure of a shoe can scarcely be borne; the whole foot, when the irritation runs high, gets swollen and red, and even the lymphatics up the leg are inflamed. This is called the onychia simplex. Sometimes only one side is affected, and if so, it is generally the outside; at other times, both sides of a nail, and in some instances, both great toes suffer from this painful disease. I am inclined to think that, besides the local cause I have mentioned, the constitution has something to say to it, I have observed so many cases in delicate strumous people and in those who labour under other diseases. I operated on a gentleman who was paralytic of the whole side of the body and of speech, who had it in both great toes. There is also a young lady who is at present, and has been for the last three years,

labouring under paraplegia, with cataleptic attacks, and who has been bed-ridden for that period, and, consequently, never wore a shoe, yet for a year and a half has had onychia simplex of the right great toe nail at the outside. This onychia simplex is not a disease that gets well of itself; its progress is usually from bad to worse; the swelling of the toe becomes very great, so much so, that a case is given by Dupuytren, where from the size and redness of the toe, the patient was for a long period treated for gout—a mistake, however, scarcely credible. The more the flesh swells, the greater is the pressure on the toe nail, the deeper and more extensive the ulceration from which fungoid granulations are seen to arise.

If you see this disease early, when the upper end at the side of the nail is alone engaged, you may stop it in this way:—Let the patient lay up, and poultice the toe with bread and water; this lessens the irritation and inflammation, and you will find that you will be able to insinuate, by means of a small lachrymal probe, a minute shred of lint under the angle and side of the nail, and between it and the flesh; after it is fixed in, wet it with a solution of nitrate of silver, ℥i. to the ounce; if the lint remains in, it need not be removed for forty-eight hours. You will then find the irritation and its consequences lessened, and by renewing the application two or three times the disease will be cured; and to avoid a return, you should caution the patient when cutting his nails, to cut them straight across, to be sure there is no little projecting point at the angle, but also most particularly against rounding off the angle, which allows the flesh to be pressed over it the more readily. I cured in this way a large heavy man, foreman to Mr. Turner of the Iron Works, who had been previously treated by caustics, poultices, and ointments without any good.

When, however, the disease is more advanced, the pain and irritation excessive, it is better, after rest and poultice, and a purgative if required, to proceed with an operation, one of the most painful in surgery, though happily of short duration, by slitting up the nail and removing it. It is done in this way:—the blade of a strong short-bladed sharp-pointed scissors is passed under the nail, quite to the root, the nail is slit up in the centre, one side is seized at its middle angle with a strong forceps, and torn out by turning it over on itself. If both sides are diseased, then the other half of the nail is served in the same manner, a poultice is applied, and in a few days the part will be well. It is quite remarkable how soon a case of a year's standing is thus cured in so short a time.

Chloroform happily enables us to perform this painful operation without the consciousness of the operation.

Mrs. A. W., a rather delicate young lady, has suffered for eight months from onychia in both great toes, and on both sides of the nail in each. Great varieties of lotion, and several caustic applications have been tried in vain, and she cannot walk. I put her under the influence of chloroform, and slit up with a scissors the centre of each

nail, and then with a strong forceps seized in turn the angle of each, twisted and drew them out entire and unbroken. She never felt the operation. A bread and water poultice. On the eleventh day she was just well, two little yellow spots in the centre of each nail alone remaining unhealed. The nails grew again in the course of a few weeks.

Sometimes the toe is bruised by a heavy body falling on the nail, blood is effused under the nail, inflammation, suppuration, and ulceration of more or less of the matrix ensue, with a loosening and separation of part of the nail from its bed. In this case the nail acts as a foreign body, and no relief is afforded until it is torn out. You have an instance of this in a boy formerly in the house, on whose toe the edge of a pail fell; also in a young woman, a patient of Mr. Adams, to whom a nearly similar cause originated the injury, a bucket having crushed her toe, and with so much subsequent inflammation, that it extended to the periosteum, matter formed between it and the bone, with death of the last phalanx, which had to be removed.

George Bagnall, æt. 15. Three weeks ago a bucket fell on his right foot, and hurt the toe very much; it bled largely at the time from under the nail: he suffered much from it; inflammation took place, it got worse and worse up to the time of admission. The nail was very loosely attached, and was removed this morning by Mr. Hamilton, without much pain, though it required a sharp, strong pull. After removal, the matrix appeared raw and ulcerated at the sides, a projecting white fibrous membrane at the root of the nail, looking at first very like new nail. A bread and water poultice. A week after the surface of the matrix looked quite healed, with a new nail beginning to grow. He was dismissed. It is a good example of one form of simple onychia, the inflammation and ulceration having been caused by the crushing and tearing of the nail. In an unhealthy constitution, it would have run into the second variety, which has been called onychia maligna, from the severity of its symptoms, not from any cancerous character it possesses: it is a disease of the matrix which secretes the nail. This diseased action may be caused by an injury which crushes or tears the root of the nail in its bed as in Bagnall's case, or by disease originally commencing at the root of the nail, with inflammation and ulceration, and finally an alteration in the nail itself, as we might expect from its secreting structure being diseased.

The toe is very much swollen, of a deep red colour, the nail is either gone, and its whole matrix converted into a large unhealthy looking ulcer, the surface greenish or black looking, with raised white callous edges, and profuse, thin, fetid, oily, and often bloody discharge; or if there is a nail, it is quite altered, dark, thin, and even shrivelled like wet parchment, and is evidently not the cause of the state of the toe as in onychia simplex. The swelling and redness very constantly affect the foot, and I have even seen them extend some distance up the leg. Sometimes there will be a fungoid granulation springing up from the centre of the ulcerated matrix, even from the bone itself;—

after the nail is gone and the disease is lessening in violence, an attempt at a new nail will be seen to be made by some white horny prominences here and there.

It is not always confined to the great toes, as I have seen it affect some of the smaller toes at the same time.

The pain is very great, and the least touch of the part gives exquisite pain; wearing a shoe is out of the question, unless the leather over the toe is cut out. There is great irritation in the system; and from that and restless nights, and want of exercise, the patient gets pale, and thin, and low spirited. The fœtor of the discharge, in spite of every care on the part of the patient, is most offensive.

It is a disease of youth rather than age: I have seen a girl ten years old affected with it.

The treatment that Dupuytren was the first to propose is very severe, indeed, though certainly very effectual; it was to remove the entire matrix of the nail; he made a deep incision with a sharp straight bistoury, in a semi-circular form, a little above the root of the matrix, and carried it round the sides; he raised with a forceps the edge of the integument next the matrix, and cut under it toward the end of the toe, keeping close to the bone, so as to remove the diseased matrix entirely. The part was to be examined closely, to see if there was any portion of the nail remaining, which was to be removed; it was then to be covered with a pledget of lint, with holes in it and smeared with cerate, and dry lint outside it, and not opened for five days.

In about a fortnight it had generally healed. You will sometimes have to perform this operation, but not often. Mr. Wardrop found that mercury given to salivation effected a cure; and the late Mr. Colles was in the habit of treating such cases very effectually with mercurial fumigation. You may combine these, giving three grains of blue pill three times a day, and apply mercurial fumigation daily till the sore assumes a healthy granulating surface, and the surrounding inflammation and swelling subside; the simple applications, bread and water poultice, or simple cerate dressing, may be used; sprinkling the ulcerated surface with red precipitate powder nearly answers as well as the fumigation.

The efficacy of this treatment is well illustrated by the case which has just left the house:—George Waller, ætat. 20, admitted into No. 1 Ward, April 5th, 1855; the great toe of the left foot is much swollen, of a livid red colour; the extremity bulbous, with a deep excavated ulceration, brown and sloughy on the surface, round the root and sides of the nail; the edges of the ulceration raised, sharp, indurated and very tender; the nail is shrivelled, of a dark brown colour, easily breaking; it is firmly attached to the toe, but seems undermined by ulceration; there is profuse discharge, thin, sanious, and extremely fœtid; the redness extends up the foot and to neighbouring toes, with some tumefaction. He suffers much pain, particularly at night. The disease is of three months' standing, beginning with ulceration at

the corner of the nail—he thinks from too tight a shoe. A month after its first appearance, he was admitted into the prison hospital, where he remained for two months, the ulcer being repeatedly and freely cauterized and poulticed, but without any improvement.

He was ordered five grains of blue pill night and morning, the surface of the ulcer to be sprinkled with red precipitate powder, and the toe to be poulticed; under this treatment the part rapidly improved, and the surface of the sore became healthy; but as the nail appeared to keep up irritation, and to show no indications of separating, Mr. Hamilton put him under the influence of chloroform and removed the nail, which was very adherent at the root. On the 24th, three weeks after admission, he was dismissed cured.

If these mild means fail, you still have the operation. Before chloroform was resorted to, it was, perhaps, the most painful operation in surgery; the sensibility of the parts was so exalted—the least touch was so exquisitely felt, that no wonder the stoutest quailed at the idea of any operation on it with the knife. I saw the following remarkable instance of the shock of the nervous system, from the torture of the operation:—A little girl, about 12 years old, had onychia maligna from the fall of a stool on the toe. An incision was made beyond the matrix of the nail, and carried round the side; a similar one was made on the other side to meet it, so that the nail was completely isolated. The incision was then carried horizontally under the nail, which was entirely removed. The girl screamed loudly during the operation, and fainted at its termination, and finally went into a fit, during which the back was arched, the arms moved about as in stretching while yawning, the eyes suffused, open, fixed, and the pupils dilated, evidently insensible to objects or to sound—insensible in fact. After being carried to bed she went from one fit into another, the pulse very rapid and small. The fits were tranquil ones. After several hours they gradually subsided, and she got well with rather more sympathetic fever than usual. —*Dublin Hospital Gazette, June* 1, 1855, *p.* 134.

91.—*On the In-Growing Toe Nail.* By G. M. Humphry, Esq.—[Mr. Humphry proposes the following as a simple and effectual remedy for this troublesome complaint:]

This is nothing more than a piece of silver, rolled out sufficiently thin to admit of bent to the required shape, yet sufficiently firm to bear moderate pressure. This should be nearly the length of the nail, from a quarter to half-an-inch wide, and bent into somewhat of an S shape, or rather thus,

. The lower end (*b*) is, with the aid of a pair of forceps, to be carried down between the overhanging ulcerated skin and the nail, and hooked under the rough edge of the latter. The upper end (*a*) is then carried outwards, and secured in that

position by a strip of plaster, and a bandage round the toe. By this means, the inverted edge of the nail and the skin are effectually kept from one another, and pressed in opposite directions. The nail is a little elevated, and the "fungous growth" very soon shrinks under the pressure of the metal, and assumes a healing aspect. Often, when the silver is well adjusted, the patient is able to walk about with comparative ease immediately afterwards. I do not interfere with it for several days, when a marked improvement is usually found to have taken place. The silver is readjusted with greater ease, and allowed to remain a longer time. Gradually the ulcer heals, and the nail grows up in more natural shape and appearance. It is well, however, to continue the use of the silver for some time; and, after the sore has quite healed, it is well to insert a piece of lint, or a small flat piece of silver, under the edge of the nail, to prevent the tender cicatrix being fretted by it, and to keep down the skin. The patient should be directed to avoid tight shoes, and not to cut the corner of the nail low down. In some bad cases, it has been necessary to keep the patient quiet, or in bed, for a short time; and, in a few, to prepare the way for the silver by the introduction of a piece of lint, secured by a strip of plaster. There may be nothing novel in the plan here recommended, but certainly is not known and adopted so generally as it deserves to be. It suggested itself to me when reflecting upon the nature and causes of the complaint, and endeavouring to find some better means of treatment for this very painful and annoying malady than those I had seen employed, feeling certain that the removal of the side of the nail, or any portion of it, which is usually done, must be wrong, for the simple reason that the skin soon occupies the vacancy so caused, and is most likely to be again fretted by the nail growing up into its former place. Since I adopted the above plan, some years ago, I have found little difficulty in the treatment of these cases, have instructed some patients to carry out their own cure, and have not failed in a single instance. The size and exact shape of the piece of silver must, of course, be regulated according to the case, and a little nicety of manipulation is required to insinuate it between the ulcerating skin and the nail, and hook it under the edge of the latter, without inflicting much pain in the exquisitely tender state of the part.—*Med. Times and Gaz., July* 7, 1855, *p.* 21.

92.—*Nitric Acid and Sulphur as an Escharotic.*—Mr. Cock has recently been employing in some cases under his care in Guy's Hospital, as an escharotic, a compound of nitric acid and sulphur. A paste is made by mixing the strongest nitric acid with sublimated sulphur, until of a proper consistence. This paste is applied to the diseased surface, the surrounding parts having been protected by plaster, as when chloride of zinc is used. The mixture does not run about. It appears to give less pain than the nitric acid alone, and

acts longer, producing more of eschar. In one case Mr. Cock employed it to remove a prominent mass of granulations in fungous testis, and it succeeded well. A cure, however, did not result, as a subsequent attack of inflammation aggravated the condition. We understood Mr. Cock that the formula had been suggested to him by Sir Benjamin C. Brodie.—*Med. Times and Gaz., July* 7, 1855, *p.* 8.

93.—*Cutaneous Nævi Cured by the Application of Iodine Paint.* By Dr. S. Edwards, Physician-Accoucheur to the Samaritan Hospital for Women, &c.—[Two cases met with by Dr. Edwards were most satisfactorily and completely eradicated by this means.]

The first instance in which I was induced to employ it, was for a nævus unfortunately situated on the side of the neck of a female infant. At birth it appeared simply as a small red shining spot, which in three months increased to the size of a fourpenny piece. The mother of the child at this time positively refusing to have any escharotics employed, fearing that it might give rise to a permanent and greater deformity, I recommended astringent and cold applications to be applied constantly, and this was kept up for some time, but with no good result. The nævus at the end of ten months had acquired additional size, and was observed to become redder and a little more elevated, whenever the circulation was increased by crying, &c. The parents still refusing any of my former suggested remedies, or even of vaccination, "until it got worse," I recommended the use of iodine paint, which was regularly employed by gently painting over the surface with a camel's hair pencil every alternate day, occasionally leaving it off for three or four days when the skin was very irritable and rough. Under this treatment I was pleased to find that the growth of the nævus was arrested, became smaller and mottled, and finally disappeared; a speck or two being alone visible to mark its former site.

The second case was very similar; occurred in a little boy nearly two years of age. The nævus was about the size of a shilling, but slightly elevated, and situated on the abdomen, and had gradually, but very slowly, increased since birth. No treatment had been employed, the physician who attended the mother of the child, having advised nothing to be done unless it increased. The tincture was commenced in September, 1854, and was continued more or less up to last month, when the disease had disappeared, leaving scarce a trace of the mischief.

I know not whether others may have made trial of this treatment, but its success in these two cases has induced me to draw attention to it, as it is a plan so simple in its character that I can see no objection to its employment. In neither of these cases did it produce fever, or, in fact, any effect upon the general health. It is difficult, of course, to decide what might have been the result had these cases

been left to themselves without treatment. I have seen several that in the course of time spontaneously disappeared; but still the fact that each of the above cases had gone on increasing up to the commencement of the treatment, and then began shortly to recede, and finally disappeared, must induce the belief that some considerable merit is due to the iodine, and that it deserves to have a more extended trial.

The many plans that have been proposed and adopted for producing inflammation in, and consequent destruction of, the nævus, are mostly attended with serious objections—*caustics*, by occasional extensive ulcerations, serious hemorrhages, and by exciting not unfrequently considerable constitutional irritation. *Vaccination* has, I believe, generally failed, and when successful has the disadvantage of leaving the ordinary cicatrix. The seton, needles, the injection of fluids, and lastly, and perhaps the best of all, the knife, have an aspect of seriousness to the parents, and are all fraught with occasional serious consequences. The latest plan which has been suggested, is that of Mr. I. B. Brown, who has produced pustules on the cutaneous nævus by means of tartar emetic ointment. Besides the almost certainty of a larger or smaller cicatrix being left, in one of his cases it occasioned very serious sloughing of the neighbouring parts; objections to its employment about the face and neck of a very decided character. —*Med. Times and Gaz., June* 2, 1855, *p.* 540.

94.—*Atheromatous Tumours of the Scalp.* By JOHN ERICHSON, Esq.—[These consist essentially of a diseased sebaceous follicle, lined inside by tesselated epithelium, and combining a cheesy-looking matter; if they contain a darkish-coloured matter, it is a sign of disintegration, not unfrequently followed by ulceration, which may readily be mistaken for a malignant growth.]

The mode of removal of these tumours before ulcerating is very simple. A single incision is made across the wen or cyst, and then, with a strong drag of the forceps, a sort of evulsion is practised, the entire growth coming out like an almond from its husk or shell. They are found also under the eyelid, and are made worse by any practice but one—namely, passing a small probe through them on the conjunctival surface, and stirring up the contents with the probe dipped in nitric acid.—*Lancet, June* 23, 1855, *p.* 624.

95.—*Spender's Chalk Ointment in Ulcers of the Leg.*—Dr. PATTERSON has collected 125 cases of chronic non-specific ulcers of the leg, in which, under this mode of treatment, the cure has been rapid and complete. The following formula he prefers:—

℞. Cretæ preparatæ, ℔iv.; adepis suilli, ℔i.; olei olivæ, ℥iii.

Having heated the oil and lard, add gradually the chalk, finely powdered.

The ointment and a bandage being once applied, it is left until the cicatrix forms and becomes firm.—*American Med. Examiner.*—*Edinburgh Med. Journal, July* 1855, *p.* 53.

96.—*Deep-Seated Abscesses.*—The injection of deep-seated abscesses with tincture of iodine is coming into more favour in hospital practice. In two cases during the present month, in the analogous sacs of ovarian cysts, one by Dr. West, at St. Bartholemew's, and another at University College Hospital, iodine was used. In a third case of immense abscess of the loins (not lumbar abscess), Mr. Paget found the iodine injection very valuable. The rapidity with which the iodine is absorbed and spread over the system, and then eliminated by the kidneys, seems to prevent excessive local stimulation. In hydrocele iodine is almost always used, also, as the danger of too much local inflammation by the old port wine injection is thus avoided.—*Lancet, Sept.* 22, 1855, *p.* 279.

97.—*Phagedænic Sores: Use of Charcoal.*—The treatment of phagedænic sores is always more or less tedious. We have recently noticed two cases of this nature; one treated by Mr. Adams, very satisfactorily, with an application we have before noticed—balsam copaiba—a mild and useful stimulant. The other case was a large ulcer on the lower extremity, in a man in one of the beds at St. Bartholomew's. In addition to the ordinary plan of carrot poultice, charcoal, opium, &c., we observed a contrivance suggested by Dr. Stenhouse—a sort of cage of open wire-work, hanging from the cradle placed over the limb, and filled with pieces of well-burned charcoal. When we remember the fatal rapidity with which hospital gangrene, or erysipelas, spreads from one bad case in hospital to others, and then call to mind the unboubted value of charcoal as a deodorant, if not disinfectant, the plan of Dr. Stenhouse seems a good one. This cage or wire-work, we need only add, is not at all in the way, as it hangs under the bed-clothes. The chief objection to charcoal, in the shape of poultice, seems to be, that "dampness" destroys its power of absorbing noxious gases.—*Lancet, Oct.* 13, 1855, *p.* 339.

DISEASES OF THE EYE AND EAR.

98.—TREATMENT OF PURULENT OPHTHALMIA.

By John F. France, Esq., Surgeon to the Eye Infirmary, and Lecturer on Ophthalmic Surgery at Guy's Hospital.

[The system of treatment uniformly adopted in the Eye Infirmary at Guy's Hospital has been eminently successful, for in a great number of cases treated, destruction of the cornea has only taken place in one-

fifth, eighty-one per cent were saved; of course the treatment varies a little according to the stage of the attack, and the age and vigour of the patient.]

Mercury has constantly been exhibited at the outset, with the object of bringing the system quickly under its influence, but has never intentionally been pushed beyond the point of affecting the gums with tenderness. As soon as that point has been reached, a diminution of the dose and in the frequency of administration has been enjoined. Of the beneficial action—nay, the necessity of this agent within these limits, I am now well convinced, though, prior to experience, regarding it with disfavour. I believe its curative influence is exerted not so directly upon the suppurative inflammation of the conjunctiva as in restraining the sub-mucous cellular effusion, and counteracting the tendency to aggravated mischief beneath the surface, which the sudden suppression of the morbid secretion by other means is calculated to produce. When chemosis has been inconsiderable or absent, or when ulceration has once set in, mercury has been exhibited more sparingly; for in both cases less can be gained, and in the latter more is to be feared, from its operation than in the stage of active interstitial deposition. The nitrate-of-silver solution, generally of the strength of eight grains to the ounce of water, was employed in all the cases deemed remediable. Its application was ordered every two, four, or six hours, according to the intensity of inflammation, the abundance of discharge, and the rapidity with which the pain characteristic of the disease, and stayed by the collyrium, returned. Two things deserve especial notice here—the necessity of obtaining access for the drops as far as possible, to the whole conjunctival surface, and the inexpediency of permitting them to rest long in contact with the cornea. The control exercised by a weak solution of nitrate of silver in ophthalmia neonatorum far exceeds that of the strong solution in the present graver malady. A cure is effected with certainty in the former by the collyrium of nitrate of silver, careful ablution only being demanded besides. In the latter, in order to relieve the general inflammatory excitement, to check the cellular exudation, and preserve the cornea, other active remedies in addition are indispensable; but the purulent secretion is at once restrained, and the conjunctivitis (taken *per se*) mitigated by this astringent.

In the above cases it will be seen venesection was not once resorted to, and the cupping-glass was very sparingly used; but leeches were applied repeatedly, as long as the inflammation ran high, and the preservation of sight was possible. Tyrrell's mode of scarification was also adopted whenever the chemosis was considerable and the patient would submit to it. In several of the preceding narratives this is not particularly noted; but the practice was the rule, to which the exceptions alluded to were rare. In one remarkable case, however, that of Ann B——, No. 12, arising, in all probability, from gonorrhœal contagion, both eyes being affected, and the chemosis great, the

patient absolutely refused to undergo what, at the time, I regarded, and represented to her, as absolutely necessary for her recovery. She regained, notwithstanding, excellent vision, and proved that, however desirable and expedient, the operation is not, even under the most aggravated circumstances, essential to success. It is a valuable auxiliary, relieving in the most direct manner the distension of the reticular tissue, and so contributing materially to the cure; but probably few practitioners, if any, now recognise it as that antidote to the dangers of purulent ophthalmia which the lamented author seems to have considered it. Observation, indeed, shows that rapid ulcerative action, not passive sphacelus, is the common source of the cornea's destruction; and, giving every credit to Mr. Tyrrell for his important suggestion, and especially for the milder constitutional treatment he simultaneously introduced, I entertain much doubt whether some mischief has not arisen from the too exclusive confidence in this one remedy, which his ingenious rationale and earnest recommendation of it created.

But to return: The performance of radiant scarification was in the above cases facilitated where the palpebral fissure was naturally short, by freely dividing the external commissure of the lids. Spasmodic contraction of the orbicularis palpebrarum was thus in a measure neutralized, and, besides the immediate advantage to the operator, material relief of tension was obtained. Throughout the course of the disease, almost unceasing use of warm poppy fomentation, containing one or two drachms of alum in the pint, was enjoined. By dint of continued sluicing with this fluid, the pus may be as effectually washed away as by the aid of a syringe—an instrument which is open to the double objection of possibly inflicting injury upon the patient in unskilful hands, and upon the attendant in zealous ones. The last case arose from the spirt of matter caused by a syringe inoculating the operator; and in one of the two cases immediately preceding, the sister of the ward was in all likelihood only saved from similar consequences by the circumstance of wearing spectacles, on which, happily, instead of on the conjunctiva, she received a jet of discharge in the same way. Tonics and nutritious diet were made available at an early period. On the average, their exhibition was commenced within the first week after active treatment had been instituted, the principal local indications for their use being flaccidity of the palpebræ, subsidence of the chemosis, and fading of the brilliant hue of the inflamed surfaces. Occasionally the constitutional state, as judged from the pulse and aspect, seems from the very first to demand decided support, for persons of debauched habits are the most liable to at least one variety of the complaint. These points, of course, must not be disregarded, and it is quite practicable to sustain the power of the system by a moderate amount of unstimulating aliment concurrently with treatment in some respects of an opposite character. In most cases, however, it demands the nicest discrimination to determine the precise period when tonics may beneficially be brought in; and though the guides that direct us

may be designated in a general way as above, it is yet, I believe, by considerable experience and careful observation alone that in practice their delicate intimations can be correctly recognised. One good result of the plan here pursued is the avoidance in general of lingering chronic conjunctivitis. The granular palpebra was formerly a common sequela of purulent ophthalmia. I only recollect two instances in the foregoing collection in which this condition was observed subsequently to the removal of the acute symptoms; in neither did it reach any considerable degree, or impair in the least the transparency of the cornea. I believe the use of mercurials, local depletion, and local astringents from the first, and the seasonable exhibition of tonics as above exemplified, calculated to ward off this ulterior evil of purulent ophthalmia, as well as its earlier and more urgent dangers.—*Lancet, June* 9, 1855, *p.* 581.

99.—ON PURULENT OPHTHALMIA.

By James Dixon, Esq., Surgeon to the Royal London Ophthalmic Hospital.

If the treatment of purulent ophthalmia by excessive depletion be judged by its results—the only sure test—we shall, I think, be forced to confess that there was ample cause for trying some less violent means of cure. It has been suggested that the more temperate habits of the mass of the people at the present day, as compared with what existed fifty years ago, may exert a considerable influence over the inflammatory manifestations of certain diseases, and that those surgeons who describe purulent ophthalmia as they saw it at the commencement of the present century, had really sometimes to contend with a greater fulness and force of circulation in their patients than we are in the habit of witnessing, especially among the overworked and crowded population of our great towns. Certain it is that, as far as my own experience at a large metropolitan hospital enables me to form an opinion as to the general condition of patients suffering under purulent ophthalmia, I should say that they are uniformly more or less depressed, with a pulse more feeble than natural, and in a state which in every way contradicts general bleeding, and calls for the administration of tonics. There is usually a coated tongue, with loss of appetite, and a brisk purgative is needed at the very outset of the treatment. Afterwards, either bark and ammonia, or quinine should be given, and hyoscyamus if the patient be restless. Pure air—to many the best of all tonics—must, if possible, be obtained; and all unnecessary confinement to bed, or to one room, avoided. Meat may be allowed once a day, and a moderate quantity of beer or wine; but on this head no arbitrary rule can be laid down. The surgeon's judgment must guide him as to the cases in which he ought to forbid stimulants, recommend them in moderation, or even insist upon an extra quantity being taken.

Meantime, the local treatment should be commenced at once. I always employ either a solution of alum (eight or ten grains to the ounce of distilled water), to be injected under the lids every quarter of an hour, or nitrate of silver (three or four grains to the ounce), to be applied three times a day. It is useful, after employing the nitrate of silver for a few days, to change it to the alum, or *vice versâ*. The application of the solid nitrate of silver to the whole surface of the inflamed conjunctiva is preferred by some surgeons, but I have not found it superior to the solution above mentioned; it may be used to the cornea in those cases (chiefly occurring, however, in *gonorrhœal* ophthalmia) where rapid ulceration is beginning at its margin.

The student ought constantly to bear in mind that, although the disease termed purulent ophthalmia has received its name from that symptom which most readily attracts notice—namely, the profuse conjunctival discharge, the real source of danger lies in the *cornea;* and that, even if it were possible so to drain the patient of blood as materially to lessen, or even wholly arrest, the discharge, we might still fail to save the eye. It is not the flow of pus or mucus, however abundant, that should make us anxious, but the uncertainty as to whether the vitality of the cornea be sufficient to resist the changes which threaten its transparency.

These changes are twofold—*rapid ulceration* and *sloughing*. Now, has any sound surgeon, I would ask, ever recommended excessive general bleeding and salivation as a means of averting these morbid changes from any other part of the body except the eye? And, if not, why are all the principles which guide our treatment of disease in other organs to be thrown aside as soon as it attacks the organ of vision?

Do what we may, it must sometimes happen that in the more acute cases of purulent ophthalmia, our best endeavours are in vain, and the cornea becomes irreparably damaged; still I feel convinced that, if we are unremittingly watchful to observe the changes which take place in the eye itself or in the general health of the patient, and to modify our treatment accordingly, a stimulating plan such as I have sketched will do all that our present knowledge of the disease can enable us to accomplish.—*British & Foreign Med. Chir. Review, Oct.* 1855, *p.* 394

100.—ON STRUMOUS OPHTHALMIA.

By George Critchett, Esq., Surgeon to the Royal London Ophthalmic Hospital.

The treatment of strumous ophthalmia naturally divides itself into constitutional and local, which may be dwelt upon separately, for the sake of arrangement, though at the same time it must be borne in mind that they bear an intimate relation to each other; for, whilst it must be admitted that all these cases are in some measure due to constitutional causes, the local disease often persists long after the

original and exciting systemic cause has passed away. There are three principal digressions from the normal standard that I have particularly noticed as favourable for the incubation of this form of ophthalmia. The first of these I would designate the "inflammatory type." It is rapidly developed, the local symptoms are acute, there is severe pain in the eyes, attended with profuse lachrymation of a scalding character, red, swollen lids, and spasmodic closure. The constitutional symptoms exhibit a hot and dry skin, a rapid pulse, foul tongue, loss of appetite, arrest of all the natural secretions, constant restlessness. The treatment, under these circumstances, consists chiefly of salines, antimonials, mercurial purgatives, and the use of the warm bath: this latter is peculiarly useful in such cases. The diet must be light, and not either stimulating or too nutritious. At the same time care is required not to persevere in this plan too long, not in fact a day longer than the state of the secretions indicate its propriety, otherwise a feeble condition is induced, and the disease continues in a subacute or chronic state. Much discrimination is needed in making out these shades of difference, and success in the treatment mainly depends upon our doing so.

The second class of cases that seem to deserve special notice may be denominated the "irritable type." In these cases the mucous membranes are congested and disordered, and their secretions increased in quantity and vitiated in quality; the tongue and lips are aphthous and swollen: the nose excoriated; the skin inflamed: combined with this, there is often a tendency to prolapse of the rectum and chronic diarrhœa; this condition frequently follows one or other of the exanthemata, and may be kept up by the presence of worms. You may readily recognise this form of disease by the general outpouring from the mucous outlets. Unsuitable food and want of cleanliness are fertile sources of this deranged state of the mucous membranes.

In the treatment of these cases, all causes of irritation must be removed; if worms are suspected, one or two drastic aperients may be required. The secretions may be improved by a mild mercurial and an alkali. The diet must be carefully attended to; many of these symptoms result from crude ill-digested food, improper in quality or superabundant in quantity. The children of the poor are very much mismanaged in this respect. At the Ophthalmic Hospital, I always give a laconic, but, as I believe, an effective formula—"stale bread-and-butter, milk-and-water, and a little meat once a day." It often happens, however, that after all these means have been carefully employed, the irritation of the mucous membrane remains, which purgatives only seem to increase. Under these circumstances I have found the utmost possible benefit from Battley's solution, regulating the dose by the age of the patient, allowing a minim for each year, and giving it once or twice in the twenty-four hours. It seems, in these cases, to act like a charm, removing the diarrhœa, checking the

other morbid secretions, improving the appetite, allaying restlessness, and subduing the most urgent and distressing symptoms—viz., the extreme photophobia. Much prejudice exists in the mind of many against the use of opium in any form in children: but extensive experience has convinced me of the great value of this remedy in suitable cases. Warm baths soothe and allay irritation. Tonics of any kind are not well borne, and seem to aggravate all the symptoms.

The third division of these cases may be termed the "asthenic type." It is found most commonly among the children of our poorer population. The chief symptoms are emaciation and pallor, with a rapid and weak pulse, cold extremities, moist tongue, frequent perspirations, and are quite compatible with, and co-exist with a considerable amount of ophthalmia and extreme photophobia. It is in this group of cases that we commonly find the intermittent form of the disease. Towards evening the child will open its eyes, and play about as usual; but the symptoms will recur with the same intensity the next morning. I have observed, that a tonic treatment is most valuable in these cases; they often come before our notice at the Ophthalmic Hospital. We find such patients suffering from the effect of bad ventilation and insufficient and unwholesome food; and sometimes, in addition to this, active antiphlogistic treatment may have been employed, with a view of subduing local inflammation. It is remarkable how rapid a change is produced by the adoption of every available means for developing power in the system. Where intermittance of symptoms and periodicity can be traced, quinine seems to act like a specific; the dose must be, of course, regulated by the age of the patient, but rather a large dose can be borne, and seems to be required. Where the fibre is very lax, and the limbs feel flabby, steel is useful and seems to be indicated, and the two may be sometimes combined with great advantage. The combined salt of iron and quinine is a convenient form for its exhibition. At the same time, a liberal diet, with a moderate amount of stimulus, must be given; and fresh air, and if possible, sea-air, and all such means as are calculated to develope power.

Many medical men, judging by the severity of the local symptoms, and losing sight of the general debility of the system, treat such cases antiphlogistically, limiting the patient to spoon diet, and acting upon the various secretions. When a case so treated presents itself suffering from all the adverse circumstances which a feeble state of system has induced, it is often remarkable to observe the rapid improvement that takes place under an entire change of management. Tonics and a liberal diet may be given altogether, regardless of the severity of the local symptoms and of the intensity of the intolerance of light. If this plan can be fully carried out, its favourable effect is speedily observed; but our chief difficulty consists in counteracting the enfeebling influences by which such cases are surrounded, such as impure air, unwholesome and insufficient food, &c. When the strumous

diathesis is very marked, the glands enlarged, the upper lip thickened, cod-liver oil may be given with advantage, either alone or combined with steel. If the tongue is foul and the secretions disordered, it is a good plan to commence the treatment with an emetic, and then to exhibit tonics. Where the secretions are very abundant, opiates may be combined with tonics very advantageously. Where this asthenic condition is complicated with much mucous and cutaneous irritation, such as I have before described, with swollen nose and lips, enlargement of the glands, acrid secretions, and a cold, pasty, flabby surface, I have observed remarkable improvement in all these symptoms from the exhibition of arsenic, in doses proportioned to the age of the patients. About two minims of the liquor arsenicalis is the dose I generally give, three times a day, immediately after meals. The effect must be carefully watched, and the medicine must not be given at any one time for a longer period than a fortnight or three weeks. The beneficial effect is often rapid and striking, and it may be given in a state of system for which no other medicine seems to be quite suited. As regards the use of mercury in these cases, I believe that in by far the greater majority it is very injurious; but instances do occur, though they are rare and difficult to detect, in which this medicine is useful. I can only indicate them as belonging to the class of strumo-syphilitic, in which some syphilitic taint is engrafted upon and combined with struma, and produces a train of symptoms in many respects resembling some forms of tertiary syphilis. I have met with cases so closely resembling the more remote effects of a primary sore, that, if it were not for the age of the patient, you might suppose it was the result of the direct influence of this poison. I am not now speaking of those cases that occur soon after birth, and are manifestly syphilitic, but rather of such as appear at ages ranging from about seven to twelve; the cornea and iris and even the deeper textures are often involved, and the intolerance of light is very extreme. Minute doses of mercury, as for instance one or two grains of the grey powder, or one-ninetieth of a grain of the bichloride, twice or three times a day, seem to act very beneficially both upon the general health and the local symptoms. I must, however, again urge the extreme importance of correctly diagnosing this peculiar complication, otherwise more harm than good will be done by the exhibition of this medicine.

Before I leave the subject of constitutional treatment, I must not omit to mention that most efficient of all means for restoring strength in a strumous diathesis—I mean, change of air, particularly to the sea; this expedient will sometimes effect a cure when all else has failed. Not only is it useful in removing present mischief, but it often prevents a relapse, a strong tendency to which constitutes one of the most distressing features of such cases.

We may now pass on to the consideration of the local treatment of strumous ophthalmia, a point second only in importance to the constitutional, since we find a judicious combination of topical means with general treatment essential to success.

Local treatment may be arranged conveniently under the following heads: Local depletion; Counter-irritation; Local stimulation to the lids and to the eye; Local sedatives. In the earlier stages of an attack, where the symptoms are acute, the vessels full and numerous, and of a bright-red colour, or in a sudden relapse of an old-standing case, in which you can trace fresh organized deposit or a false membrane on the cornea, the abstraction of blood, by means of leeches, is often useful; they may be repeated, with advantage, once or twice, but I have usually found it useless to continue this plan for any time; all the benefit likely to accrue from it is very speedily obtained; a prolongation of local depletion is apt to enfeeble the system, without any corresponding subsidence of the local disease. In less acute cases, where the vascularity is not so prominent a symptom, or where it has been diminished by local depletion, blisters are very useful; they must be frequently repeated, and, in mild cases, will effect complete relief of the most prominent symptoms. Mr. Tyrrell dwells strongly upon the advantage of this form of temporary counter-irritation in relieving intolerance of light, and seems to rely upon it almost exclusively as a local means in these cases. My own experience does not allow me fully to subscribe to this view. In the more severe cases, blisters fail; and in some forms of the disease, in which mucous and cutaneous irritation co-exist, they seem to be decidedly contraindicated. A modification of this plan, though possibly acting in a very different way, has recently been strongly advocated. It consists in applying some powerful local stimulant to the eyelids. Some use for this purpose the solid nitrate of silver, moistened, and brushed lightly over the lids; others paint the tincture of iodine on the lids. Whichever is selected, care must be taken that it does not find its way into the eye; and it usually requires to be repeated every four-and-twenty hours, for a few days, until a decided impression is made on the skin. The advocates of this plan attribute its efficacy to the direct influence of the stimulus upon the extreme branches of the fifth pair of nerves, upon an abnormal irritability of which they believe the photophobia to depend. Whether the explanation be correct or not, I have no doubt of the advantage of the plan in some cases. I have tried it very extensively, and have observed that where it is useful its effect is very rapid and complete, but that it is only in a certain limited number of cases; in many others, it has had no appreciable effect. The important and difficult point to ascertain is, some guide or indication to its applicability—whether the use of this method must be tentative and empirical, or whether we can select cases in which a favourable result may be predicated. It appears to me that this method is peculiarly applicable to those cases in which vascularity and other evidence of diseased action are slight, and photophobia exists as the prominent and principal symptom, and in which the disease is not of very long standing. I generally use the tincture of iodine in preference to the nitrate of silver, because it occasions less pain, is less liable to produce vesication,

and is equally efficacious. With regard to the employment of solutions of the nitrate of silver, and other local stimuli, to the conjunctival surface, in strumous ophthalmia, I find them, in the majority of cases, decidedly injurious, and, under these circumstances, they seem very much to retard the cure, and to exert a baneful influence for some time after they have been discontinued. The presence of photophobia, however, does not alter the rules I have already laid down for your guidance, in a former lecture, with regard to the employment of such means. If the secretion is of a puro-mucous character, stimuli will be of service, but they will not subdue the disease single-handed, as in pure catarrhal ophthalmia, but must be combined with other suitable means, both constitutional and local, and if the discharge becomes aqueous in its character, the local treatment must be altered. Cases do occasionally occur, in which the symptoms are severe and protracted, and in which I have observed, both in my own practice and in that of others, great benefit from the use of the nitrate of silver, although none of the conditions above mentioned, as indicating this remedy, were present. My motive for its employment, under such circumstances, has been the exhaustion of all other available means, and rather as a *dernier ressort* than as the result of any scientific induction. Such occasional and accidental exceptions to a rule do not at present advance our knowledge of treatment, but ought in candour to be mentioned, and may ultimately lead to the elucidation of a fresh law. In those forms of strumous ophthalmia, in which irritability is a prominent symptom, in which the disease is limited to the conjunctiva, forming aphthæ and phlyctenulæ, attended with aqueous secretion of a frothy character, local sedatives are very useful. Of these, perhaps the best is the opium wine of the Pharmacopœia, dropped into the eye two or three times a day; it generally causes rather severe pain, that lasts several minutes, but is followed by a marked improvement in the symptoms. Prussic acid is highly extolled by some authorities; it may be used in the form of vapour, or as a lotion, or drops, diluted in the proportion of a drachm of prussic acid, of the Pharmacopœia strength, to an ounce of distilled water. I have certainly observed great advantage from its employment in several cases. Belladonna is sometimes used as a lotion or a fomentation in the same group of cases. I can speak with more confidence of the opium wine than of any other form of sedative as a local application; it is an old but very valuable remedy that has fallen into unmerited neglect. This has probably arisen from its too indiscriminate use, and from a want of care and judgment in selecting cases suitable for its employment.—*Lancet, June* 16, 1855, *p.* 602.

101.—*Granular Conjunctiva.* By J. Dixon, Esq.—I believe that in most cases of granular lid our chief dependence must be placed in improving the patient's general health, by giving him iron and quinine,

singly or in combination, regulating his diet, and, if possible, placing him in a pure and bracing air. An issue in the skin of the temple, kept open with a single pea, and occasionally stimulated if the discharge becomes scanty, with some caustic or other irritant, is a slow, but often very serviceable adjunct. Tincture of iodine painted on the skin of the lids is often useful.

I have at various times tried all the most approved lotions and drops, but have never satisfied myself that any of them were of much benefit. The acetate of lead in fine powder, dusted over the everted lid, produces considerable pain at the time of its application, but afterwards gives decided relief, apparently by mechanically filling up the interstices of the "granulations," and so producing a smoother surface for the eyeball to move upon. As the salt slowly dissolves, it probably exerts also an astringent effect upon the vessels supplying the enlarged follicles and papillæ, and so diminishes the size of these excrescences.—*Brit. and For. Med.-Chir. Review, Oct.* 1855 *p.* 395.

102.—ON THE UTILITY OR INUTILITY OF THE CATOPTRICAL TEST IN DOUBTFUL CASES OF CATARACT.

By Dr. Hays, of Philadelphia.

In the diagnosis of cataract, the catoptric examination of the eye affords the most unerring test.

In the early stages of lenticular cataract, the brilliancy and distinctness of the inverted image are diminished; it has no longer a sharp and well-defined margin, but its outline appears shaded off. This image gradually fades with the increase of the opacity, and long before the cataract is mature, the inverted image is obliterated. The deep erect image is also indistinct in the advanced stage. The anterior surface of the capsule giving only a general reflection.

In capsulo-lenticular cataract, the inverted image fades much earlier than in mere lenticular cataract; a very slight degree of opacity of the capsule sufficing to destroy its function of reflection.

Among the numerous cases we have seen, in which we have derived great assistance in our diagnosis from the aid of the catoptric test, we shall relate two, which will serve to show its utility, and to justify the confidence we repose in it.

In September, 1839, I was invited by my friend, Dr. G. W. Norris, to examine a mulatto man, named Peter, in the Pennsylvania Hospital, who was supposed to be affected with glaucoma. The pupils had been dilated by the application of belladonna. There was opacity in both eyes, which was denser in some parts than in others. This opacity seemed more deep-seated than is usual in cataract, and its colour was of a greenish grey. Vision was, however, quite as good, perhaps better, than might have been supposed from the degree of opacity.

On holding a lighted candle before the eyes, the three images were visible. The anterior upright image was natural in all respects. The deep-seated upright and inverted images were dull, their margins indistinct, and of an unusual reddish tint. The inverted image in one eye disappeared as the candle was moved opposite to the more nebulous portion of the lens; and when the observer looked at the eye of the patient obliquely, the second inverted image seemed to have a double point, like the letter W. I did not hesitate, from these phenomena, to pronounce it to be a case of cataract.

A few days afterwards this man died suddenly, and we were afforded an opportunity of examining his eyes.

The transparency of both capsules was impaired. A narrow streak at the posterior part of one lens, extending from near the margin to the centre, was quite opaque, and on applying a needle to this portion we found it quite soft, so as to be readily removed, leaving a depression. On carefully washing both lenses. so as to remove their superficial layers, which were softened as well as partially opaque, the remaining portion of each was found perfectly transparent and of a beautiful amber colour. This colour was the same whether the lens was viewed by transmitted or reflected light.

The second case was that of a man named Christian Minster, forty years of age, admitted into Wills' Hospital, Oct. 7th, 1841. This man stated that he had recently come from the country; that he had been admitted in one of our public institutions, where he was pronounced to have cataract, and it was determined to operate upon him; but that, being unwilling to submit to this, he had eloped. In a letter which he showed from his physician in the country, his disease was said to be cataract.

The opacity behind the pupil had certainly great resemblance to that of cataract. The degree of vision he enjoyed corresponded to the degree of opacity; the independent and associate motions of the iris were tolerably active, and the patient saw best by twilight.

On applying the catoptric test, however, it was at once found to be a case of amaurosis, and not of cataract. The three images were visible, and of their natural appearance. The history of the case led me to ascribe the amaurotic affection to congestion of some portion of the nervous apparatus, and a course of treatment corresponding to this view was directed, consisting of counter-irritation to the back of the neck, purging, stimulating pediluvia, &c. Under this course he improved so rapidly, that in a week he could read with one eye a diamond-print Bible. He subsequently had a relapse; but by the application of cups to the head, pustulation with tartar-emetic on the back of the neck, and afterwards ptyalism, he was completely restored. He was discharged cured in January following.—*Ibid*, *p.* 402.

103.—ON THE OPHTHALMOSCOPE.

By T. Wharton Jones, Esq., F.R.S., Ophthalmic Surgeon to University College Hospital.

[This instrument is very valuable to show the appearance of the retina when in a congested state, or when otherwise affected.]

For all practical purposes, opacity of the lens can be sufficiently well ascertained by ordinary exploration with the pupil dilated. By means of the ophthalmoscope, adjusted for the purpose, however, otherwise undistinguishable opaque points can be seen. But it is of no advantage to push the diagnosis of opacity of the lens to such a minute degree of accuracy, seeing that we often meet with cataractous opacity, quite evident to ordinary examination, notwithstanding which there is still pretty good sight; whilst, on the other hand, cases occur in which the impairment of sight complained of is not at all to be accounted for by the appreciable opacity of the lens.

Whilst the morbid states of the anterior segment of the eyeball are sufficiently accessible to objective exploration, those of the posterior segment, comprising the vitreous body, retina, and choroid, could formerly, with some exceptions—(e.g., exuded matter in the vitreous body, scrofulous and encephaloid growths at the bottom of the eye, &c., which give rise to a yellow shining appearance, sometimes traversed by blood-vessels)—be determined only from the attendant subjective phenomena. This defect in our means of diagnosis of the state of the posterior segment of the eyeball was, however, practically little felt. Having determined that the disease was not seated in the anterior segment, and thus, *per exclusionem*, and from the nature of the subjective symptoms (together with the objective symptoms presented by the anterior segment, and by the eye considered as a whole), referred it to some part of the posterior segment, we were in a position to conduct our treatment of the case, not with less efficacy at least than can be done now, when it is possible, in many instances, to discover, by means of the ophthalmoscope, opaque spots, shreds, &c., in the vitreous humour, and congestion, with extravasations, exudations, and pigment deposits in or behind the retina.

Morbid states discoverable in the vitreous body, are opacities in the form of fixed spots, or of undulating membranous shreds and filaments, of the most different size and form, with sharp or indistinct outline.

There is nothing more easy than to see the vessels of the retina in a cat's eye without an ophthalmoscope. Having previously dilated the pupil by atropia solution, drop some water into the eye while the eyelids are held apart, and cover the cornea with a thin plate of glass. The vessels of the retina can then be seen, slightly magnified. It has been proposed to explore the bottom of the human eye in a similar manner, and instruments have been contrived for the purpose, but the ophthalmoscope . . . . . is of more ready and convenient application.

In man, the red colour which the bottom of the eye presents varies

in tint; being brighter in fair, more of a yellowish-brown in dark, individuals. The retinal vessels are seen branching on the uniform red field formed by the more vascular choroid. At the entrance of the optic nerve, which appears whitish-yellow and well defined, the retinal vessels are seen emerging. The retina in the situation of the yellow spot is little or not at all vascular, and sometimes presents a greenish-grey aspect. A streak of pigment deposit may be seen at some part or all round the border of the optic papilla.

The principal morbid appearances in the retina which have been observed, are congestions, spots of extravasated blood, pigment deposits, opacities of various aspect, the retina itself bulged forward by fluid accumulated between it and the choroid, and tremulous in the dissolved vitreous body.—*Ibid, p.* 389.

104.—DIRECTIONS AND CAUTIONS RESPECTING THE USE OF THE OPHTHALMOSCOPE.

By James Dixon, Esq., Surgeon to the Royal London Ophthalmic Hospital.

[The form of instrument now generally employed is that of a single concave mirror, of four inches focus, perforated in the centre, and fixed in a handle.]

The examination is made in a darkened room in the following manner:

The patient sits sideways at the edge of a table on which a lamp is placed, the flame being close to, and on a level with, the suspected eye, but far enough back to prevent any light falling directly on the cornea: or he may sit with his back to the table, the lamp being close behind him, so that the rays of light just clear the top of his head, and fall perpendicularly, instead of obliquely, on the surface of the mirror.

A chimney faintly tinged with blue, by decomposing the red rays, whitens the light, and imparts to the tissues of the eye a more natural appearance.

Unless the pupil have become dilated by disease, it must be fully brought under the influence of atropine before the examination is begun.

The surgeon sitting close to and facing the patient, holds the mirror at such a distance in front of the eye to be examined, that the rays of the lamp may be brought to a focus on the patient's retina. As this cannot instantly be found by a beginner, it is better for him to direct the rays at first upon the patient's lower lid, and as soon as a well-defined inverted image of the flame has been formed there, a slight upward and forward movement of the miror will bring the retina itself within the exact focus of the instrument.

If it is desired to magnify the parts observed on the surface of the retina, or to increase their illumination, the surgeon, holding the oph-

thalmoscope steady in one hand, must take in the other a convex lens of about two and a half inches focus, and place it at a suitable distance in front of the patient's cornea.

So much has lately been written about the value of the ophthalmoscope as a means of detecting incipient disease of the retina, that the student must be warned against the irreparable mischief he may inflict upon an eye, in which vision is only slightly impaired, by subjecting it to an intense glare of concentrated light.

His first trial should be made on one of the lower animals,—a kitten, for example ; and when he has acquired readiness in using the instrument, he may next proceed to examine patients who have long been hopelessly blind, but in whom the media of the eye remain transparent.

One very important fact should never be lost sight of by those who employ the ophthalmoscope—namely, that the mere concentration of powerful light on the retina, if continued for more than a few seconds, does of itself place the part in an unnatural condition. In exploring the internal ear, by means of artificial light, we may, indeed, concentrate the rays upon the tympanic cavity, or its membrane, to any amount, without injury to the parts illuminated ; but the retina, so far from being a merely passive object of examination, is just the one tissue in the body which appreciates the intensity of the rays which fall upon it ; and it must be borne in mind, that an eye may be irritable and intolerant of light to an extreme degree, even although there may be a considerable diminution in its power of perceiving objects.

Incipient amaurosis is a term in itself so vague, and often so indiscriminately employed to designate a slight failure of sight from assumed loss of function in the retina, that I would most earnestly impress upon the student the danger of too hastily subjecting persons complaining of slight defects of vision to the searching glare of the ophthalmoscope. First, let the cornea be most rigidly examined, to ascertain whether some loss of transparency may not exist in the axis of vision. Then, after the pupil has been dilated, let the lens undergo a similar scrutiny ; and until the observer has thoroughly satisfied himself that both these structures are transparent, let him not subject the retina to the possibly irritating effects of concentrated light.

The chief value of the ophthalmoscope seems to consist in enabling the surgeon to set aside, as positively hopeless, a large number of cases formerly termed *amaurotic*, or *nervous*, which were assumed to be still curable, because their real nature could not be demonstrated.

We now know that total disintegration of the vitreous body, detachment of the retina from its connexion with the choroid, and other equally hopeless conditions of structures essential to vision, may exist, without any alterations being produced in the outward appearance of the eye. In enabling us, therefore, to appreciate these conditions, the ophthalmoscope has proved of immense value ; but the more delicate changes occurring in the early stages of deep-seated disease, whilst they elude detection by this instrument, are almost certain to be aggravated by its application.

We frequently meet with patients who have gradually lost sight in one eye or in both, and yet have neither suffered pain nor observed any unnatural appearances—such as spots, sparks, or flashes—on their field of vision. There is nothing faulty in the structure or functions of the iris; in fact, the eye presents every appearance of perfect health; and yet even the brightest light fails to make any impression on the retina.

Such cases have been commonly classed as *amaurosis;* the absence of inflammatory action in the superficial tissues of the globe making the surgeon discard all thought of the choroid being the seat of the mischief. Yet the ophthalmoscope may at once reveal extensive changes both in the choroid and retina. These two structures may be widely separated from each other by effused fluid. The retina may be partially or wholly overspread with opaque, whitish deposit, or extravasated blood. The papilla of the optic nerve may be atrophied, so as to be barely traceable; the branches of the central artery or vein being fewer in number and diminished in size.

In short, the whole fundus of the vitreous chamber may afford evidences of extensive disorganization, while the iris and superficial textures appear perfectly healthy. . . . .

It must needs be a difficult task to suggest any rational plan for treating a disease which, in many instances, begins by inducing mere dimness of sight, without any other noticeable symptom, either local or general. Chronic inflammation of the choroid, with effusion of fluid between it and the retina, sudden extravasation of blood in the same situation, and other changes, equally serious in their nature, are, as I have just stated, revealed by the ophthalmoscope in patients who have not been aware of any impairment of health, and who have suffered little, if any, local pain in the affected eye. In such cases the surgeon is commonly consulted after all the mischief is done, and when treatment can be of no avail. He will at least abstain from attempting violent measures, such as extensive bleeding and the action of mercury, which, while they are powerless to renew a disorganized structure, may seriously impare the general health of the patient.

The invention of the ophthalmoscope has been hailed as the beginning of a new era in the study of eye-diseases, and as a means of clearing up all the obscurity which has hitherto surrounded the pathology of the choroid and retina; and doubtless the discovery of extensive organic changes in eyes which had never exhibited any of the ordinary signs of inflammation, has shaken old-established opinions as to the frequency of *functional amaurosis;* that is to say, loss of visual power in the retina without traceable change in its structure.

Nevertheless, there are many limits to the powers of the ophthalmoscope.

1. It can afford us a clear view of the retina only when the lens is transparent; and we know how commonly this body becomes opaque where disease has for a long time existed in the deeper tissues.

2. Unless the pupil be of good size, or dilatable by means of atropine,

only a very small extent of the retina can be brought into view ; and chronic iritis—so frequent an accompaniment of changes in the choroid and retina—never exists without giving rise to such adhesions between the iris and capsule of the lens as must limit both the size and dilatability of the pupil.

3. Although various alterations in the retina—loosening of its attachment to the choroid, thickening, extravasation of blood, &c.—are so readily seen by the aid of the instrument, the earlier stages of disease (which alone are curable) produce changes so slight and delicate as to elude observation.

A marked increase of redness in the colour of the retina sometimes takes place after it has been exposed for only a short time to the rays of the lamp ; and the observer, who is not aware of this, may very likely attribute to a settled morbid state of the eye what is in truth only the temporary result of his own examination.

When the rays reflected from the mirror are first allowed to fall upon the fundus of the eye, a generally diffused, reddish glare is usually perceived ; but as soon as the proper focus has been attained—which is known by ramifying blood-vessels coming clearly into view—this red colour changes into an orange-red, an orange-yellow, or, in some cases, even a buff tint. The surface of the retina is now exposed, and as this is not quite a transparent tissue, but only translucent, it appears like a delicate whitish film, overspreading the red network of closely-packed choroidal vessels. The latter are not recognisable as separate trunks, but they produce the effect of an indistinctly mottled layer behind the retina.

If the patient turns the eye inwards, the papilla of the optic nerve comes into view—a circular patch of white, faintly tinged with pink. From the centre of the papilla emerge the central artery and vein of the retina ; the more frequent arrangement being that an artery and vein pass upwards, and a similar pair downwards ; both sets of vessels then dividing into several branches, which run towards the periphery of the retina.

There are certain forms of blindness which, from their partial extent or transient duration, we cannot suppose to arise from any such alterations in the retina as could be appreciated by the ophthalmoscope ; and a search with that instrument, in these cases, would not only be fruitless, but, unless prosecuted with great care, would almost certainly produce mischievous results.

One of the most important results of the ophthalmoscope will probably be a great restriction in the administration of mercury. Patients who, for many months, have lost the perception of objects—perhaps even of light itself—will no longer be encouraged to submit to a lengthened mercurial course by the vague assurance that, 'as their case is one of amaurosis, a full course of mercury may give them a chance.' A view of the fundus of an eye overspread with *old* coagula ; of a retina detached from the choroid by effusion of serum, and undulating with

each movement of the globe; of an atrophied optic papilla; of a vitreous humour filled with opaque filaments and corpuscles; these, and other palpable signs of disorganization, will force the most devoted believer in the omnipotence of mercury, to dethrone his idol.

The ophthalmoscope now shows us that morbid changes in the vitreous humour are by no means so uncommon as had been supposed. It is, however, far from easy to determine the precise nature of those changes; for not only is it difficult to bring into the proper focus the variously-shaped bodies, which appear as flakes, rounded granules, filaments, &c., but this difficulty is greatly increased by the rapidity with which some of the bodies are whisked about in the vitreous humour by each involuntary movement of the patient's eye. They are probably, for the most part, coagula of effused blood, mixed in some cases with granules of pigment, or the products of inflammation. Some of the larger, more membranous flakes suggest the notion of their being portions of broken-up hyaloid tissue.

[Two slight inaccuracies occur in Mr. Dixon's directions for the use of the ophthalmoscope.

He says the patient "may sit with his back to the table, the lamp being close behind him, so that the rays of light just clear the top of his head, and fall perpendicularly, instead of obliquely, on the surface of the mirror." If the mirror were held perpendicularly to the rays, their focus, formed by its reflection, would not enter the patient's eye, but would return towards the luminous object. The mirror must always be placed more or less obliquely in reference to the lamp, if the focus is to fall on the patient's eye.

He says further, that "A chimney faintly tinged with blue, by decomposing the red rays, whitens the light." The blue glass does not decompose the red rays. In the light of a lamp, the red and yellow rays are in excess, so that objects seen by it appear differently from what they do in daylight, which contains a large proportion of blue rays. The blue glass chimney, by adding blue rays, will improve the light of the lamp, by making it approach to the white colour of daylight.—Dr. W. Mackenzie, Glasgow.—*Ibid*, *p*. 391.

105.—*Browning of the Conjunctiva from Nitrate of Silver.*—When solutions of nitrate of silver are long employed as eye-drops, it is not unusual for the conjunctiva to assume a brown or olive hue. The staining is permanent unless removed by remedies. Mr. Critchett ordered, in a case of this kind which presented itself at the Moorfields Ophthalmic Hospital a few weeks ago, a solution of iodide of potassium (gr. viij. ad ℥j.) to be freely used. He stated that he had seen this lotion diminish the stain, but had never known it effect a complete removal. Cases in which nitrate of silver drops are used should always be carefully watched, in order at once to desist, should this

change of colour be caused. The sulcus of junction of the ocular and palpebral conjunctiva is the part where the staining commences, and if the surgeon be particular to inspect this frequently, he will run no risk.—*Med. Times and Gaz., July* 21, 1855, *p.* 63.

106.—PRACTICAL REMARKS ON STRABISMUS.

By G. Critchett, Esq., Surgeon to the Royal London Ophthalmic Hospital.

Much has been said about the importance of determining which is the defective eye in any given case, and rules have been laid down for ascertaining this point. The truth is, that in almost every case both eyes are equally implicated in the abnormal position; for although one may be habitually inverted and the other straight, yet if the strabismic eye be brought into play, it assumes a normal condition, and moves in obedience to the will, and the other eye, if suddenly uncovered, will be found precisely in the position that the diseased eye usually assumes; and I have proved over and over again that as favourable a result is obtained by operating upon one as the other. The fact is, that in strabismus the two eyes start from different points; both respond to the effort of the will, and each is found, when examined separately, to move equally well in every direction. The disease is therefore rather relative than positive. Practically I endeavour to find out which is the eye that is habitually inverted, and for this purpose I test the relative power of vision in the two eyes, and I select for operation the one presenting this peculiarity. But in the alternating form of this disease it is quite immaterial which is done, and in any case the result would be the same as regards the removal of the deformity; but the defective eye is selected in the hope of benefiting its vision simultaneously with its position.

The first point that impresses itself upon the mind of an extensive and careful observer is, the extreme variety of causes to which the disease is attributed; but when these are analyzed and grouped, they may be arranged under three heads:—first, where the origin of the nerves is affected through the brain and spinal cord, as in cases following convulsions, fevers, &c.; secondly, where irritation is propagated from extremities of nerves, as in cases following injuries, ophthalmias, &c.; thirdly, from morbid volition, as in cases resulting from imitation, from temporary excitement, &c. In investigating the causes of strabismus, we find a very close analogy between this disease and talipes. Another circumstance, equally conspicuous and more embarrassing, is the numberless shades of difference in the degree of departure from the normal position, whether it be inversion, or, more rarely, eversion, or, still more rarely, undue elevation or depression. In extreme cases, we find that when one eye occupies a central position the other is so far drawn into the corner that about half the

cornea is concealed by the folds of the caruncle; in slight cases, the departure from the central axis is from half a line to a line, and between these two extremes there is every shade of difference. The same may be said respecting diverging strabismus; but the third variety—viz., that in which either the superior or inferior rectus is involved, is never found in an extreme degree. Again, we find that the condition of the sight is very different in cases that are in other respects apparently simple. The rule certainly is, that in cases of habitual strabismus of some years' standing, the function of the organ is impaired: but I have met with several well-marked cases in which sight has remained perfectly good, and with others in which the degree of impairment of vision has varied considerably, some being able to read large print, others being scarcely able to distinguish features, or even large objects. In the alternating form, vision is almost invariably found to be equally good in both eyes; and these varieties exist without any obvious change in the appearance of the eye, either as regards the condition of the pupil or of any of the transparent media, such as may generally be observed in amaurotic cases. It is quite possible that the ophthalmoscope would reveal changes in the retina and choroid in some of these cases, but I have not as yet had opportunities of observing a sufficient number to speak with any certainty. It has been said that the power of the external rectus, and consequently of eversion, varies considerably, as evinced by the extent to which the eye can be acted upon by this muscle; and this may be true in some cases, but it must be received with much caution, particularly where the strabismus is extreme, because the limit of eversion of the one eye depends upon the other having reached its utmost extent as regards inversion, and consequently the voluntary effort as excited in both eyes has reached its extreme boundary.

In considering the question of treatment, I propose to limit my remarks exclusively to operative proceedings, never having been able to trace any advantage from any other plan, after the deformity has existed any time. The operation that has usually been practised for the removal of this deformity has consisted in the free division of those parts attached to the inner surface of the globe, including conjunctiva, sub-conjunctival fascia, rectus muscle, and its sheath; in fact, it was recommended by one author, that the inner surface of the sclerotic should be cleaned: if we bear in mind that this operation has been performed upon some thousands of cases, of all ages, and presenting the numerous varieties to which I have already alluded, the wonder is, that a greater number of failures have not occurred, and that a uniform procedure should have been found so extensively applicable to a condition presenting so many degrees of deformity; nevertheless, this is to a certain extent true. When the eye is free from the muscle it seems, in many cases, to have an inherent and selective power of assuming the straight position. So that what seems improbable in theory exists in fact. At the same time, un-

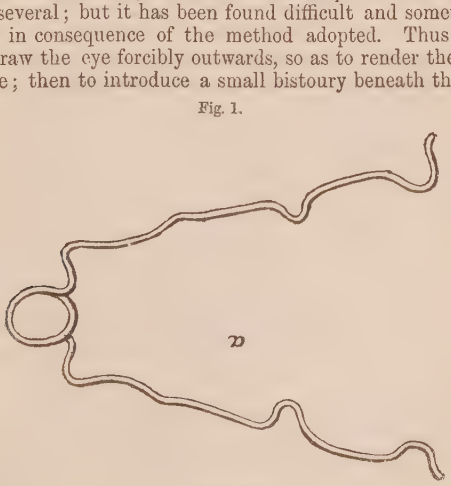
toward results sometimes follow the operation, either immediately or at a subsequent period, rendering the condition of the patient worse than before. As, therefore, the motives for recommending such an operation are mainly based upon considerations respecting personal appearance, (the improvement to sight being secondary and uncertain,) it becomes a matter of great practical moment to consider what are the defects of this operation, and how far they admit of correction. The first point that strikes every close observer, even in the most favourable specimens of the operation, where the eye has assumed a perfectly normal position, and moves freely, is a certain sinking in and loss of the caruncle, so that the inner part of the globe seems more exposed than that of the opposite eye. and a fossa exists in the place of the caruncle ; this, so far as my experience goes, is an invariable result of the operation, and explains the circumstance that has been often remarked, that those cases are the most successful in which it has been necessary to operate on both eyes, the double defect being less conspicuous than when one only has been divided, and is brought into competition with the natural state of the parts. Another unfavourable result that sometimes occurs, is increased prominence of the globe ; this takes place usually immediately the muscle is divided, but I have known it occur at a subsequent period, and gradually increase for a time. This, no doubt, arises from the loss of balance of power between the recti and obliqui, the latter acting with undue power when one of the recti is divided ; the difficulty is to explain why this occurs in some cases and not in others, and to indicate any sign by which such a result may be predicated ; and this I shall endeavour to do in a subsequent part of the paper. The most serious and damaging effect of the operation is the occurrence of eversion : this may be an immediate or a very remote sequence of the operation ; and when the previous inversion has been slight, and there has been increased prominence, and an extensive reaction in the outward direction, the deformity is very great, and almost hideous : the face seems robbed of all expression—"there is no speculation in those eyes." To the patient it becomes a serious grievance ; and, to the operator, a kind of haunting spectral vision. I have met with cases in my own practice, and in that of others, in which the two cornea have occupied the outer angles of the lids, particularly if the eyes have been operated upon at the same time.

There are some other minor objections to which I may briefly allude. The extensive wound in the conjunctiva heals very slowly, remains red and swollen for a considerable time, often gives rise to a fleshy growth that requires removal, and leaves a scar more or less distinct, and the power of moving the eye in the direction of the divided muscle is often quite lost, constituting in itself some deformity. In stating the case, therefore, for the old operation, there is invariably a sinking and loss of the caruncle, and a scar, usually a considerable loss of power of inversion, not unfrequently increased prominence of

the globe, and occasionally eversion more or less complete, either immediately or as a remote effect, and there may be both prominence and eversion co-existent. Now, considering that the operation is undertaken and submitted to almost exclusively with the object of removing a deformity, it becomes a question whether this deformity is removed to a sufficient extent, and in a sufficient number of cases, to justify the proceeding, and whether one decided case of eversion does not outweigh a large number of what are usually deemed successful. Whatever may be the opinion of the profession on this point, I think it must be admitted that, with such defects, a wide margin is left for improvement; and that if a procedure can be suggested, in which no sinking in of the inner caruncle occurs, nor any perceptible scar remains, in which increased prominence and eversion, as far as my experience has yet gone, never takes place, and in which the healing process is complete in a week, and is never attended with the formation of a granulation, I think all must admit that a very important point is gained. Such a plan I have recently been in the habit of adopting, and it is chiefly with the view of setting forth the details of this operation that I have been induced to bring the subject before the notice of the profession.

The essential principle of the operation I am about to describe consists in the division of the muscle sub-conjunctivally. This, it will be remarked, is not altogether a novel suggestion; it has been recommended by Mons. Guerin, and has been attempted with more or less success by several; but it has been found difficult and sometimes impracticable, in consequence of the method adopted. Thus it is suggested to draw the eye forcibly outwards, so as to render the internal rectus tense; then to introduce a small bistoury beneath the muscle,

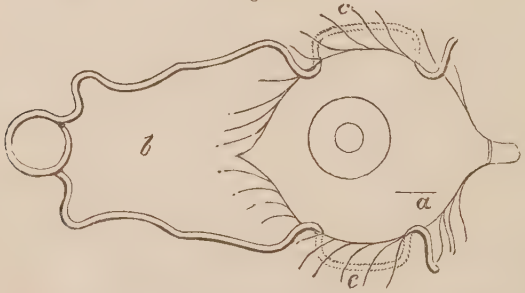
Fig. 1.



a. Speculum.

and divide it. Any one who has attempted this operation in this way will agree with me that it is one of extreme difficulty; the loose capsule round the muscle prevents the edge of the knife from acting upon the tendon, neither can the tendon be made sufficiently tense to be thus divided. The difficulty and uncertainty of this operation has resulted in its having been rarely attempted, more rarely accomplished, and never repeated. The method that I propose, and that has been performed by myself and some of my colleagues at the Ophthalmic Hospital in a large number of cases, is the following:—Having placed the patient, if nervous or restless, or very young, under the influence of chloroform, the eyelids must be fixed open with a spring speculum (Fig. 1, *a*); the globe may be now everted by an assistant, and the

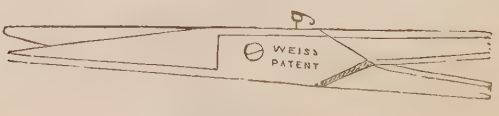
Fig. 2.



b c, Speculum in action, the dotted lines representing it under the lids.
d, Situation and size of incision in conjunctiva.

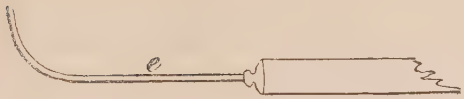
operator, seizing the conjunctiva at a point corresponding to the lower border of the internal rectus, makes a small opening with a pair of rather strong blunt-pointed scissors. (Fig. 3, *g*); he then seizes the sub-conjunctival fascia, and divides it to the same extent, so as clearly and cleanly to expose a small surface of sclerotic. The ordinary strabismus blunt hook, (Fig. 4, *e*), bent at a right angle, must now be swept round the globe, so as to pass beneath the muscle; this may be known by the peculiar elastic resistance that is felt; the blades of the scissors must then be passed in through the opening, and by a succession of small cuts the tendon may be readily divided between the hook and the insertion into the sclerotic, and close to the latter. (Fig. 5, *f*). You may distinctly feel and sometimes hear the creak

Fig. 3.



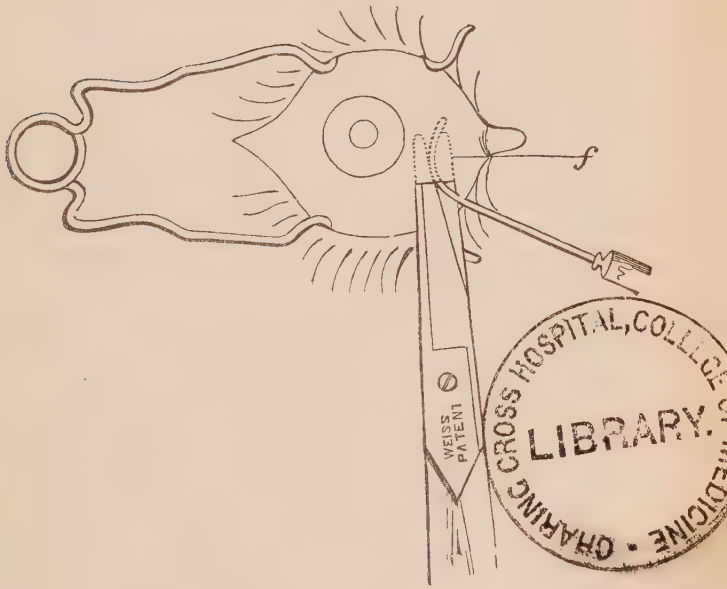
g, Strabismus scissors.

Fig. 4.



e, Strabismus hook.

Fig. 5.



f, Hook and scissors in action under conjunctiva.

of the scissors as the tendon is cut through. Some little difficulty is sometimes experienced, when the insertion of the tendon is rather broad in reaching its upper edge, and when that is the case I make a small counter-opening in the conjunctiva corresponding to the upper border of the muscle. I introduce the hook from above, and, having passed it beneath the remaining slip of tendon, divide it with the

scissors in the same direction. This counter-opening has the advantage of facilitating the escape of blood that has become infiltrated beneath the conjunctiva, and it does not in any way interfere with the principle and aim of the operation, which is to leave a broad band of conjunctiva between the cornea and the inner caruncle intact. The advantages of this plan, as contrasted with the old one, seem to me to be very great. It has, in the first place, the merit enjoyed by all subcutaneous sections, of immunity from inflammation and suppuration, and makes a very rapid and certain cure; no granulation ever forms, and the caruncle maintains its natural position, and does not shrink away into a deep fossa, as is invariably the case when the usual operation has been performed; and as far as my experience yet goes, proptosis or increased prominence of the eye is more rare, eversion never occurs, and the natural movements of the eye are more complete. This I attribute to the fact that the ocular fascia is but little interfered with, and that a good firm union takes place between the divided muscle and the globe of the eye.

Such seem to me to be the advantages of the mode of operating that I am now anxious to explain and recommend—advantages that are of so important a nature, that in fairly stating the case to the patient, if the old operation is contemplated, it certainly admits of doubt if the personal appearance is much improved, even in the most favourable results, and there is always a risk of increased prominence and of eversion, and it admits of a question whether it can be recommended. If, on the other hand, the mode of proceeding I am now setting forth be in contemplation, we may at least feel assured, that if the deformity is not altogether removed, it will not be rendered worse, and that in many cases the result will be so perfect that the most experienced eye will not detect any defect, or be aware that any operation has been performed. But it may be asked if there are any objections to this operation, and any cases in which the old operation is preferable. It must be admitted that it is rather more difficult to perform, that there is a greater liability to leave some portion undivided, and that sometimes some inversion remains, in consequence of the attachment of the muscle to the fascia after it is divided from the sclerotic. This will often rectify itself afterwards, and where this is not the case, it is better either to operate on the other eye, or, if the cast is slight, be content to leave the case in that state, rather than risk eversion by further interference. It is only in cases of long standing, and where the strabismus is very extreme, and where the eye is small and deep-set, and where the sub-conjunctival operation produces but very little effect, that the old operation is justifiable.

Before I conclude this paper, I would just briefly glance at two or three points of some practical interest, having reference to the age of the patients, and condition of the eye, at which the operation should be performed, and to the effect of the operation upon vision.

As regards the first point, my own experience, derived from many

hundred cases, is, that the most favourable results occur in young adults, as contrasted with children. Cases in which the relative position of the eyes is not uniform, and is aggravated and altered by mental or bodily excitement, and in which there is any oscillatory or rotatory movements, are all uncertain in their results, and very liable to be followed by undue prominence of the globe, or by eversion, or both. On this account, I do not find operations on children succeed so well as on young adults. As regards the effect of the extent of the distortion in influencing the result of the operation, it is difficult to lay down rules. As far as my own experience goes, I should say, that in most extreme cases of inversion there is only a partial improvement from dividing one muscle, and it is a nice point to determine if there be sufficient distortion remaining to make it safe to divide the inner rectus of the other eye, without risking eversion. Unless the eye occupy a position at least midway between the inner caruncle and the central axis, it is not safe to operate. The chief causes of eversion, after the operation, are to be traced to the previous slight degree of the inversion, to the unsettled state of the disease, or to an undue division and separation of parts; and if the slightest eversion occur at the time of the operation, there seems to be a constant tendency to increase, until it has reached its extreme limits. This arises from the disadvantage at which union takes place, the power of the external rectus muscle, and the loss of the rectifying and controlling power of vision. Eversion sometimes occurs weeks and months after the operation, in consequence of the gradual stretching of the uniting medium, an analogue of which is to be found sometimes after fracture of the patella, in which very extensive separation of the two portions occurs. The very worst case of eversion that I have ever seen have resulted from a simultaneous division of the muscles of both eyes, a proceeding that is in no case justifiable. The effect of the operation upon vision is surrounded with obscurity and difficulty. In the first place, much variety exists in the extent to which vision is impaired by strabismus; in the alternating form, both eyes are equally good; in children but little damage is done; but where the deformity has existed several years, there is almost invariably imperfect vision, differing, however, in degree in nearly every case.

In several remarkable cases that have come under my notice in my own practice, in that of Mr. Dixon, and others, a very sudden and complete restoration of sight has followed the operation. I should hesitate to assert this curious and almost inexplicable phenomenon, had I not verified the fact over and over again in a manner that admits of no doubt. Mr. Holthouse has endeavoured to explain this by supposing that the muscles of the eyeball focus the eye, and that the operation restores this power. If this were the true solution of the riddle, we should find something like uniformity of result, but this is not the case; the improvement is sometimes gradual, and sometimes no perceptible change occurs. These considerations suggest

the performance of the operation during childhood, and if the result could be made equally favourable in other respects, this would be the most desirable period for its performance, and the sub-conjunctival operation will render the usual objections to an operation at this period of life less obvious.

It will be seen that the chief object of my paper has been to describe and set forth the advantages of the sub-conjunctival operation ; and it may be thought by some to have the disadvantage of difficulty and uncertainty, without sufficient counteracting advantages, particularly as it is alluded to very briefly and somewhat disparagingly by the more recent writers on this subject—Mr. M'Kenzie, Mr. H. Walton, and Mr. Holthouse. After having tried it in above a hundred cases, I never now adopt the old method, and I am strongly impressed with the uniformity of the favourable result ; in no cases have I had increased prominence or eversion. In some cases, it is true, some amount of inversion has remained, but this occurred at least as frequently with the old operation ; so that the patient is now sure of improvement from the operation, without risking the occurrence of any of the unfavourable concomitants of the old plan.

As I have mentioned in the foregoing remarks, cases of eversion, following the operation of dividing the internal rectus muscle, sometimes come before our notice. As this is a very distressing deformity,—far worse, in fact, than that for which the operation was originally performed, patients are very anxious to have something done for its removal. I have now operated on five of these cases with so satisfactory a result that I think it may be interesting to the profession if I describe the mode of proceeding that I adopted.

I may premise that the operation I am about to describe is somewhat difficult and tedious, and should be performed under chloroform, and much of its success depends upon careful attention to minute details. Having freely exposed the globe by means of the wire speculum, the parts covering the inner part of the globe, including conjunctiva, sub-conjunctival fascia, old cicatrix and muscle, with condensed tissue around it, must be all carefully dissected off the sclerotic, commencing about two lines from the inner margin of the cornea, and extending upwards and downwards and then inwards, so as to expose the inner third of the surface of the globe. This dissection must be carefully made so as to preserve the flap thus raised entire ; it can most readily be done with a pair of scissors. When this stage of the operation is completed, the external rectus muscle must be divided. It is better to defer this part of the operation until now, because the action of the external rectus is useful in keeping the globe well fixed outwards during the first stage of operation. The next part of the operation is the most difficult and the most important. It consists in passing the sutures. For this purpose small semicircular needles must be used, armed with a piece of fine silk ; the flap that has been raised from the eyeball must be firmly held with a pair of forceps, and drawn forward

so as to make it tense ; the needle must then be passed through it, as low down—that is, as near the inner corner—as possible. Two or three sutures may be passed in this way, at intervals of about two lines. The corresponding part of each suture must then be passed through that small portion of conjunctiva which has been left attached to the sclerotic near the cornea. This constitutes another difficulty, because the membrane is here so thin that the fine silk is apt to cut through : this I found a serious difficulty, in my first operation, and one that materially interfered with the success. In order to obviate this, I adopt now the following expedients :—I first separate this portion upwards towards the cornea ; the needle must then be passed through it, and then back again, so as to include a portion, which must be tied tightly, so as to prevent it from tearing out. The next point is to cut away all that portion of the lower flap that can be spared beyond the part where the suture has entered, merely leaving a sufficient margin to hold it. The silks may be now drawn tightly, and tied to the end that is already fixed near the cornea. The immediate effect of this proceeding ought to be to procure some inversion, if the various steps of the operation are properly performed. The hope and intention are, to get the parts to unite to the globe in their new position, and thus retain the eye. This, however, is only partially the case ; there is always some tendency partially to relapse, and in two cases I had to repeat the operation, with ultimate success. The sutures may be allowed to remain until they ulcerate through ; the subsequent inflammation is usually slight. The amount of mobility in the eye is very limited, but so long as it occupies a central position this circumstance is not found practically to occasion much deformity, and is an immense improvement on the facial discord resulting from extreme eversion.

My friend and colleague, Mr. Bowman, has performed this operation at the Ophthalmic Hospital, with his usual neatness and dexterity, and the effect was very perfect. My own experience would lead me now to undertake such a case with confidence in the result, if the patient would persevere ; if sufficient effect is not obtained by the first operation, a second is almost sure to succeed. I may mention that one favourable effect of the operation is the drawing forward and restoring the inner caruncle to its natural place, the deformity being much increased by the sinking in of this part.—*Lancet, May* 12 *and* 19, 1855, *pp.* 479, 507.

107.—ON THE TREATMENT OF OTORRHŒA.

By Joseph Toynbee, Esq., F.R.S., Aural Surgeon to St. Mary's Hospital.

"Otorrhœa," a term which I have endeavoured to abolish on account of its great ambiguity, has its most frequent origin in five different diseases of the ear, viz. :—

1. Catarrh of the dermoid meatus.
2. Polypi.
3. Catarrh of the dermoid layer of the membrana tympani.
4. Ulceration of the fibrous layers of the membrana tympani.
5. Catarrhal inflammation of the tympanic mucous membrane, with perforation of the membrana tympani.

Now, I need scarcely say, that the insertion of cotton wool into the meatus, in any of the four first-named diseases, is likely at once to aggravate the symptoms by pressing against the delicate parts which are the seat of inflammation. In fact, any of these four affections may be produced by the irritation following the presence of a foreign body in the meatus. A patient at the present time under my care, who had been suffering for some time from chronic catarrh of the dermoid layer of the right membrana tympani, had acute inflammation induced, accompanied by severe cerebral symptoms, by the introduction of cotton wool down to the outer surface of the membrana tympani. The most active anti-inflammatory treatment was requisite to put a stop to the irritation. In the course of a few days, the surface of the dermis, which had become of a bright-red colour, and was covered with granulations, assumed the appearance usual in this disease.

The use of cotton wool in any of the three first-named diseases is still more irrational when, as is often the case, they are sympathetic, and merely the result of irritation in the deeper cavities of the ear. Thus, very frequently, chronic inflammation of the mucous membrane lining the tympanum, accompanied by chronic disease of the bone, produces catarrh of the dermis lining the external meatus, the membrana tympani remaining entire, the discharge being purely sympathetic. A case of this kind, ending in death, recently occurred, under Dr. Sibson's care, at St. Mary's Hospital. I have already published a case, in which death rapidly occurred from the internal inflammation produced by mechanically irritating the meatus under such circumstances; and I have no hesitation in saying, that the introduction of any foreign substance into the meatus, in similar cases, is likely to be productive of the most serious results. Very frequently catarrhal inflammation of the dermoid meatus is a symptom of obstruction in the Eustachian tubes, and it ceases immediately that the tubes are made pervious. Such cases, are, however, called cases of "otorrhœa," and the ears are filled with cotton wool.

But if the introduction of cotton wool into the external meatus is an irrational and unsafe proceeding in cases where the discharge originates in one of the four above-named diseases in the external meatus, its use becomes quite unjustifiable when there is a perforation in the membrana tympani, and the discharge originates in catarrh of the mucous membrane of the tympanum. After careful study of the subject for some years, and after examining a very large number of diseased specimens, the conclusion to which I have arrived is, that *the cause of death in cases of catarrh of the mucous membrane of the*

tympanum and mastoid cells is the retention of the discharge; so long as there is a free outlet for the discharge, the mucous membrane does not ulcerate, and the petrous bone does not become carious. I have placed upon record a large number of cases corroborative of this important fact, and its accuracy is daily becoming more manifest, yet, in face of it, a system of treatment is recommended, which has the effect of shutting up the discharge in the tympanic cavity; for what other effect can the presence of a portion of cotton wool in the meatus produce? Even in the use of so delicate a membrane as the artificial membrana tympani, where there is much discharge from the mucous membrane of the tympanum, I insist upon the removal of the whole of the discharge, by means of a syringe, twice or thrice daily.

In conclusion, it must be palpable to every medical practitioner that the only rational way to treat the diseases attended with discharge from the ear is in the first place to ascertain their cause and nature. Sometimes the affection is purely local, and the use of a slightly astringent lotion, of a solution of nitrate of silver, or the removal of a polypus, rapidly puts a stop to the affection. Other cases have a constitutional cause, and it is impossible to arrest the discharge, nor is it wise to attempt to do so, until the constitutional tendency has been successfully combated.—*Lancet, June* 9, 1855, *p.* 583.

108.—*On a New Method of Treatment for Otorrhœa.* By James Yearsley, Esq., Surgeon to the Metropolitan Ear Infirmary.—[The usual methods of treating otorrhœa by astringent injections containing alum, salts of lead, zinc, &c., although sometimes successful in suppressing the discharge, yet often, in an exact ratio with the subsidence of the discharge, there has been a corresponding diminution of the sense of hearing. The advantage derivable from the employment of cotton wool in these cases is not limited to the mere arrest and cure of the discharge, but in many cases the sense of hearing has been immensely improved. In applying this remedy—]

First of all, the passage of the ear is to be carefully cleansed by gently syringing it with warm water, and the moisture removed by means of a porte-sponge. The parts are now to be so clearly displayed by the aid of a powerful gas-reflector, that the necessary manipulations may be readily and accurately accomplished, when I take a small piece of dry cotton—the size of which varies according to the circumstances of the case—and adjust it by gently pressing down every part of it upon the surface from which the discharge proceeds, exactly as if dressing an ulcer on any other surface of the body; this done, quiet is enjoined, restricting, as much as possible, every movement of the jaw, such, for instance, as takes place in eating and speaking. Twenty-four hours afterwards I remove this, and apply another dressing of the cotton. The importance of restricting the patient from moving the jaws will be at once manifest, if the reader will take the

trouble to place the point of a finger in the passage of the ear, and read aloud the present paragraph. It will then be perceived how easily the cotton, however accurately adjusted, may be loosened and moved from its state of exact apposition. In eating, this detachment takes place still more readily, yet the patient cannot be debarred all use of the jaw, seeing he must have food; nor, if great care be taken to keep the jaws in a state of motionless apposition, need speech be altogether interdicted; but for the same reason the food should be such as to require no mastication. Doubtless no one will consider these restrictions as objections to this mode of treatment; though a more specious, but equally invalid objection to it may be raised, on the ground that the tympanum being a cavity, such a degree of accuracy in adapting the cotton to its surface, as described, cannot be attained. If the ear be examined with the admirable appliances for its illumination now at the command of the aural surgeon, it will be found, in cases where the membrana tympani is destroyed, that the extent of the surface from which the discharge proceeds, is not only exposed to view, but the cavity is observed to be obliterated, and the walls of the tympanum, red and vascular, are seen thickened and tumid, if not spongy or fungoid. I speak here more especially of the worst cases that come under the notice of aural surgeons, in the great majority of which not only is the discharge itself cured, but the patient experiences a great amelioration in the state of his hearing also. Nay, more: cases can be referred to, in which the great disorganization of the ear seemed to preclude all hope of effecting any amelioration of the hearing, yet in which, after persevering in the treatment for a greater or less period, a change has been accomplished, which could not have been confined to the fungoid tissue alone, for, in the cases I speak of, a sensible improvement of hearing has been a coetaneous result.

The successful treatment of external otorrhœa by the same simple means has been hitherto no less rapid than certain. Moreover, in nearly every case, relief of the deafness has accompanied the cessation of the discharge—a result the reverse of that which follows, almost invariably, the treatment of external otorrhœa by astringent injections. The arrest of the discharge may, indeed, by such means, be accomplished in many instances without any great difficulty; but when that has been effected, we have no great reason to rejoice at a cure that has been produced at the expense of the patient's hearing.—*Lancet, May* 5, 1855, *p.* 451.

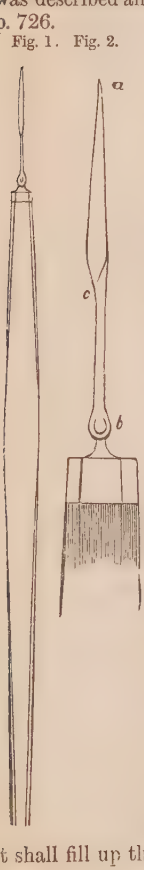
109.—KNIFE-NEEDLE FOR THE OPERATION FOR CATARACT BY SOLUTION OR ABSORPTION.

By Dr. Isaac Hays, Philadelphia.

The operation for the removal of cataract by solution or absorption, has been deemed, by many surgeons, entirely inapplicable to hard cataracts, mainly in consequence of the difficulty of dividing such a lens

by the needle ordinarily used for the purpose. The common straight needle cannot be made to cut well, beyond a short distance from the point, without being so thin as to endanger its breaking; and it is not possible to *cut* with a curved one. I have entertained the belief for several years, as is well known to my friends who are interested in the subject, that a needle better adapted for the purpose might be made something after the fashion of an iris knife, and more than three years since, I had such a one constructed by Mr. Schmidt. This instrument was described and figured in my last edition of Mr. Lawrence's treatise, p. 726.

Fig. 1. Fig. 2.



The instrument not having been made of the exact form I desired, though *described* as having a *very acute* point, is not so represented in the cut. Not being satisfied with the instruments made for me in Philadelphia, I sent a model to Messrs. Phillip and Wicker, surgical instrument makers in London, with directions as to the improvement I desired in its form, and an order to make me some of them. The instruments which they sent to me were made with the point sufficiently acute, but the back was straight to the point, and the cutting edge was too long, the makers having followed the model of the ordinary iris knife too closely.

A model was afterwards sent to M. Luer, of Paris, with an order for some of his make. These, on their arrival, I found not sufficiently slender, and the point was not sufficiently acute.

I have since had them made of different shapes, and finally Mr. Kolbe, of this city, formerly a workman of M. Luer, in Paris, has succeeded, under my directions, in making me one which has given me entire satisfaction, and is represented of its natural size in the accompanying cut, Fig. 1.

This instrument, from the point to the bead near the handle, (*a* to *b*, see Fig. 2), is six-tenths of an inch, its cutting edge (*a* to *c*) is nearly four-tenths of an inch. The back is straight to near the point, where it is truncated, so as to make the point stronger, but at the same time leaving it very acute; and the edge of this truncated portion of the back is made to cut. The remainder of the back is simply rounded off. The cutting edge is perfectly straight, and is made to cut up to the part where the instrument becomes round *c*. This portion requires to be carefully constructed, so that as the instrument enters the eye it shall fill up the incision, and thus prevent the escape of the aqueous

humour. In the diagram (Fig, 2) the proportions of the blade are not very accurately represented, the rounded part being rather too slender, and the handle should be octagonal, with equal sides, and of the same thickness its whole length.

We have now used the knife-needle in a sufficient number of cases to be convinced of its superiority over any of the ordinary cataract needles ; and of the different forms of the former which we have tried, the one represented in the accompanying drawing is, we are satisfied, the best ; and we confidently recommend it as such to ophthalmic surgeons.—*American Journal of Med. Science, July*, 1855, *p.* 81.

MIDWIFERY,

AND THE DISEASES OF WOMEN, ETC.

110.—ON TURNING THE CHILD IN CASES OF DEFORMED PELVIS.

By David Morris, Esq., Colchester.

[In certain cases of partial deformity at the brim of the pelvis, so that the child cannot be delivered by the natural efforts, Professor Simpson prefers turning the child, instead of using the long forceps, or opening the head.]

I am happy to be able fully to corroborate the safety and propriety of this method, *having adopted it in a large number of cases, and in every case with perfect success.* I am unable to state the exact number of cases, having taken no special notes of such cases, believing, as I did for a long time, that I was following a practice usually adopted by the profession at large, and not one which, as it now appears, has been confined at least to a few, as Professor Simpson assumes it as his own discovery, and recommends it as such to the profession.

I cannot have met with so few as 100 cases of this sort in the course of my practice, having registered about 3600 cases of delivery altogether, before I was obliged to retire from ill-health in the year 1852. I do not, however, claim any originality in the adoption of this practice, having been taught it by the late excellent Dr. Thatcher, of Edinburgh, while attending his obstetric course at Edinburgh during the session of 1819-20. And, in referring to a volume of notes still in my possession, taken by me at the time of those lectures, I find the practice referred to recommended as a part of his ordinary teaching upon the subject; and I believe, indeed I *know*, the same practice has been uniformly adopted by other pupils of Dr. Thatcher, and also by other practitioners. I say not this in detraction of Professor Simpson, who deserves well of the whole Medical Profession; but truth, and justice to a venerated preceptor, will not permit me to say less, and I should have very imperfectly conceived the character of the Professor were I to suppose that he will be sorry to find the method he so strongly recommends corroborated by the facts I am enabled to lay before the

profession concerning it. That his ingenuity and common-sense principles have led him to conceive and adopt it, and that hence, in this limited sense of the term, he is entitled to the discovery, I have no reason to question. All I mean to tell him and the profession is, the fact, that it was known and adopted before the Medical Profession received the benefit of his genius and labours; it may be, for aught I know, before even I was taught my profession by Dr. Thatcher, who for many years had lectured and practised Midwifery in Edinburgh, before my time, and had very likely, in every course previously, taught the same doctrine, and been the means of widely diffusing the practice.

With regard to this practice of turning, I may observe that not only in cases of partial deformity, but also in every case where nature did not seem adequate to complete the labour. either from the size of the child's head, its firm ossification, or from the feebleness of the uterine efforts, I have uniformly turned the child, and completed the labour, as a footling case, with perfect success, having never once used the long forceps, (an instrument I was always taught to eschew), and having but once in my whole life opened a child's head, and that was in a case not strictly speaking one of my own, but a case in which my advice and assistance were sought by a neighbouring practitioner. The poor woman had been delivered before, some seven or eight times, instrumentally, and, in a subsequent pregnancy, premature labour was brought on, but she did not recover. From my experience and observation, therefore, I hesitate not to affirm that opening the head, and the consequent destruction of the child, is very seldom required, if the profession generally will adopt the practice now recommended. It is true that this is by no means at all times easy practice for those who have not acquired some degree of dexterity in the performance of the operation, especially for such as are not adapted by nature for it; but when the right hand is so large that it reminds one more of a shoulder of mutton than a human hand, a defect. of course, no man can be accountable for, but a defect in an obstetric operator, that ought to lead its possessor to hesitate, especially without chloroform, to attempt turning in the case of a contracted female pelvis. The mention of chloroform reminds me to say, that in all such cases, and, indeed, in all instrumental cases of midwifery, I have felt it my duty for years to administer this anæsthetic, and have not only seen no harm in any case from it, but much benefit in enabling the poor sufferer to bear with stilness the necessary assistance afforded, and so to aid the operator in the performance of his duty. I have not, however, carried my partiality for chloroform further than to instrumental cases and turning; but in all such cases I would strongly urge its adoption as of essential use, and, if used judiciously, and with a handkerchief, as recommended by its discoverer, Professor Simpson, I do not believe it will ever cause any anxiety to the medical man.—*Med. Times and Gazette, Aug.* 18, 1855, *p.* 169.

111.—*Case of Delivery by the Forceps of a Living Child, after the Head had been opened in three Previous Labours.* By Dr. WILLIAM STRANGE, Worcester.—[The following case may be useful to the younger members of the profession, as shewing the care and caution which should be used before resorting to an operation which involves the certain destruction of the child.]

Mrs. R.——, a diminutive but otherwise healthy woman, much deformed from the contraction of the pelvis, the result of ricketty disease in youth, was married late in life. At her first confinement, the practitioner in attendance found it necessary to deliver by craniotomy, owing to the projection of the promontory of the sacrum so far towards the symphisis pubis as to preclude the possibility of delivery either by turning or the forceps. He warned her to apply early in the seventh month of her next pregnancy, which, however, she neglected to do. At her second confinement she came under my hands, and, finding the same state of things as above described, and upon hearing the history of the previous delivery, I had recourse to the same means, and with the same result. At her third confinement, having again neglected to apply for assistance early, she came under the treatment of my friend Mr. Mathias, at Bridgnorth, who called me to his assistance. She was then about eight months gone. The forceps were used with great perseverance, until it was evident that no possibility of delivery remained, except by lessening the head. This was done with the same result as before—viz., a good recovery on the part of the mother.

In March, 1854, my assistance was again requested by Mr. Mathias to deliver this woman, who had still persisted in letting the favourable period pass by, under the idea that she should at some time or other, bear a living child at the full time. The woman so earnestly begged that the life of this child might be spared, even though her own should be sacrificed, that we were induced to bestow more than usual care in endeavouring to ascertain if it were possible to drag it through the contracted part of the pelvis. On making a very minute examination of the brim of the pelvis, it appeared to be divided into two horns, separated in the middle by the projecting promontory of the sacrum, and neither of them anything like large enough to admit the passage of the child. Although not two inches in transverse diameter, these horns appeared to run backwards, beyond the reach of the fingers, to a greater depth than they had done in her previous labours, and it was the forlorn hope that the bones of the head might possibly be accommodated to the shape of one of them, that led me to attempt to deliver by the forceps. After much difficulty, and repeated failures, a very thin-bladed pair of forceps, of medium length, were fixed, and after two hours of continued pulling by each of us separately, and by both together, by means of a handkerchief tied to the handles of the forceps, the fœtus was extracted alive. The head, however, was flattened to such a degree, that it appeared wonderful how the cerebral vessels had escaped rupture. The soft parts of the temples, also, were cut through,

and very much confused. The child lived, however, and both it and the mother did well.

Such was the difficulty experienced in extracting the child, that I ought to mention, for our justification, that had it not been for the heroic fortitude of the woman, who unceasingly prayed us to continue, at all hazards, we should soon have abandoned this very dangerous traction (which continually brought down the bladder before the child) for the far safer mode of delivery by opening the head.—*Lancet, Aug.* 25, 1855, *p.* 166.

112.—CASE OF HEMORRHAGE AFTER DELIVERY.

By Dr. Francis H. Ramsbotham, Obstetric Physician to the London Hospital.

[This lady, who was in labour of her seventh child, had had profuse and dangerous hemorrhage in all her previous confinements, excepting the last. This was brought about by giving a dose of ergot just before the birth of the head, and repeating it as soon as the child was born. The same treatment was followed in the present instance, and the uterus contracted strongly. The placenta was found firmly adherent throughout one third of its extent, and was rather troublesome but, the uterus contracted extremely well after it was removed, and there was no more loss of blood then. Knowing her disposition to flooding, Mr. Brown, of Brixton Hill, was with me in case it should occur now.]

We both watched her closely for more than an hour; during the whole of this time, the uterus remained perfectly firm, and there was no more discharge than is common. We then left together, considering her quite safe. In about an hour after they summoned him back in great alarm, as she had become "faint and blue." He found there had been considerable hemorrhage since we had left, and that she had fainted. He immediately dispatched the carriage for me. I, however, did not reach my own house till past seven, and it wanted only fifteen minutes to eight when I arrived at my patient's. I was told that she had flooded a good deal externally, that she had been cold and pulseless, and that the means which had been tried to stay the hemorrhage, had been of no avail. She had rallied somewhat, but was still exceedingly blanched, and looked distressed; the uterus was much larger than when I had left her; there was a continued draining going on, and every four or five minutes a violent after-pain. I immediately introduced my hand, for the purpose of taking away the coagula which the uterus evidently contained. I had some difficulty in passing it into the cavity, from the resistance I met with in the mouth and neck, which had closed like a very firm ring. However, I removed from it nearly half-a-pound of compressed, fibrinous coagulum, and from the vagina almost as much, which was loose and soft. She

had no more of those violent pains from that time; the drainage ceased; she lost her anxious look; the pulse gradually became firmer, and the faintness disappeared. She was placed comfortably in bed about ten, and I soon after took my departure; she has progressed to her usual good state of health without a check, and is nursing her infant satisfactorily.

Although this is a case of a rather unusual kind, still its features are well worth studying; since such a one might be the cause of much embarrassment. It is laid down as a rule,—true enough in general,—that the more powerfully the uterus contracts after delivery, the less danger is there of flooding; but this only applies to cases where the cavity is empty.

If a portion of the placenta, or a fold of the fœtal membranes is retained, or it should contain a polypus, or be the subject of any other morbid growth, or a quantity of coagulated blood be held prisoner in its cavity, so that it cannot constringe its vessels; although it may contract more strongly than usual, and with great suffering, to get rid of the offending mass, bleeding may still go on to the extent of endangering the patient's life. The more powerfully indeed the uterus acts under the circumstances now considered, the less chance will there be of its expelling the coagulum that it contains; for, by closing around it, the uterine walls squeeze the more fluid parts away, the more solid and tougher particles only remaining; and the fibrinous mass thus left, becoming glued to the internal surface, with a tenacity almost equal to that of an adherent placenta, no efforts that the uterus can make will dislodge it, and it requires manual interference for its separation. But the withdrawal of the coagula by the hand, at once puts a stop to the agonizing pains, and the further loss of blood. I know no case, indeed, in which instantaneous ease and immediate safety follow more directly on the performance of any operation whatever. Nor is it probable that the hand will require to be introduced a second time; for, as the uterus has a disposition to contract, it will exert that power efficiently as soon as the obstructing cause is taken away, and by so doing will seal the bleeding vessels.

There is another point of interest in the case just related, viz., the great hemorrhagic tendency that has hitherto existed in this lady's system after labour. She has flooded, indeed, dangerously, after the birth of every child except one; and in that case she took ergot just before the infant was expelled. This is by no means an uncommon peculiarity in some females; and no plan of treatment that I have tried to prevent a recurrence in those subject to it has answered so well in my hands as the exhibition of the ergot just before the birth.

I would beg to refer those who feel an interest in this paper to some cases which I published, fourteen in number, of this description, in the 'Medical Times and Gazette' for March 26, and April 9, 1853. Case 9 there reported occurred to the same lady as the one I have just related.—*Med. Times and Gaz., Oct.* 6, 1855, *p.* 341.

113.—ON UTERINE HEMORRHAGE FROM THE CAVITY OF THE UTERUS.

By Dr. A. K. Gardner, A.M., New York.

The treatment of these cases is of two characters, viz.: the immediate hemorrhage; and secondly, for the cure of the causes of the hemorrhage.

When called early to a case of threatened miscarriage, when the hemorrhage is slight, and the symptoms indicate its local character, from ulceration or fissure of the os, a speculum examination should be immediately instituted, and the parts, if found in this condition, cauterized by nitras agenti, thus temporarily arresting the hemorrhage, and the uterine plethora allayed by general bleeding, and the excitement quieted by an anodyne. Should this treatment be effectual, the disease of the os should be subsequently treated by local applications, until the parts are restored to their normal condition.

If, however, the hemorrhage was not the primary symptom, or if the abortion was threatened in consequence of some fatigue, great exertion, or excitement, where there may be a debilitated condition of the uterus, which, in its relaxed state, opens the os, or in some way diminishes the circulation, and impairs its vital functions, I have found great benefit from the tonic effects produced by small doses of secale cornutum. The slight contraction consequent upon its action, closing the bleeding orifices, and frequently entirely arresting all further discharge and difficulty. This point I have already fully stated, with cases illustrative, in an article entitled, 'An Essay on Ergot, with New Views of its Therapeutic Action;' published in the 'New York Journal of Medicine' for September, 1853.

The bleeding, in the cases I have mentioned, will rarely, if ever, be so great as to endanger life. If, however, in a case where the origin of the flow is doubtful, it amount to any considerable quantity, the result will be to dilate the os, so that the finger may determine whether there be placenta prævia. If so, we would temporize, by resorting to perfect rest, external and internal applications of ice, alum internally,—a large piece passed into the vagina, and placed near the os uteri. These means will sometimes arrest the flow, to be repeated again at some future time. If, however, the patient be at the full time, or the miscarriage cannot be prevented, the next duty is to rupture the membranes, either through the presenting placenta by a small puncture, or, what is preferable, when the placenta but partially covers the os, through the membranes at one side. Ergot should then be given in sufficient quantities to keep up a continued contraction of the uterus, and to thus force the presenting portion of the child firmly down upon the bleeding surface, and thus to dam up the flowing stream. In this manner the head forms a natural tampon. If this be not successful, manual interference must be had recourse to, and the hand passed through or by the side of the placenta, and the

child turned and delivered as speedily as may be. In some cases the vaginal tampon may be found advantageous, but rarely in this form of trouble, when the child be *à termè!* and in general it will be found but a temporizing method of doubtful utility.

When, by any accident, we have a detached placenta, the case is a grave and startling one, calling for great decision and promptness of action. It resembles rupture of the uterus, in many of its symptoms, and is often extremely hard to diagnosticate. The fluttering pulse, anxiety of countenance, restlessness, retrocession of the presenting portion, exist, as in rupture. In general, however, the pear shape of the uterus is retained. Fortunately, the duty of the accoucheur is alike in each case. Immediate delivery is imperative. From the prostration from the loss of blood, there is no rigidity of the os to interfere with the introduction of the hand, and the immediate delivery by turning may be effected, if the head has so far retreated as to prevent the delivery by the forceps. I have seen but a few cases of this form of difficulty, and speak, therefore, from a limited experience. There seems, however, to be no other feasible manner of operating when these appalling accidents occur.

Having spoken of *hemorrhage* before delivery, I come now to describe that *occurring after the birth of the child.* This I divide into two classes, the first ending with the delivery of the placenta, and the second embracing the floodings after the placenta has been expelled. In these two classes are embraced the hemorrhages most commonly found in practice.

There are a small number of females who are peculiarly liable to flooding, and who always commence to flood as soon as the child is born. There seems to be with them some peculiar nervous distribution to the uterus, which prevents this organ from immediately responding to its new condition. The pains have been powerful and effectual, for a longer or a shorter time, till the child has been expelled. Up to this period there seems to be no want of contractibility in the organ, and as the head advances, and the child is expelled from the cavity of the womb, the womb contracts upon it, and is gradually diminished in size. How is the case usually conducted in practice? As soon as the head is expelled, the anxious attendant begins to fear that every moment the hemorrhage will commence, and impetuously seizes upon the expelled portion and pulls away for dear life, although without much regard for the life of the child, from the danger of rupturing the ligaments of the cervical vertebræ and the spinal cord. In great haste, therefore the child is extracted, and sure enough, the hemorrhage commences just as was expected, and the physician congratulates himself that the child is out of the way. But the placenta is still there, and this he also forcibly delivers. Still the hemorrhage continues, and the case soon becomes one of great peril to the mother, anxiety to the physician, and horror to the surrounding friends.

The cause of all this, is the bad practice of the attending physician, in very many cases.

The labour went on well enough as long as it was left to itself. Then why not continue? "Meddlesome midwifery" does not mean solely in applying forceps, using the vectis and Smellie's scissors. On the contrary, there is more "meddlesome midwifery" in the practice of many gentlemen who never touch an instrument. It is especially illustrated in the case just narrated, not solely from imagination; for such practice I have myself seen and heard of.

The uterine contractions and diminution in volume, as I have before stated, goes on regularly so long as the child advances towards birth, and as the head passes through the superior, middle, and inferior straits. While it rests upon the perineum, and even when entirely expelled, we have no flooding. How then shall we proceed to continue this desirable state of things? And this is the great point to be especially noted in the treatment of these cases. IMITATE NATURE, *as she has already manifested herself,* or rather, LET NATURE ALONE. Instead of frantically seizing hold of the head and pulling like a madman, sit down quietly and wait for nature to finish a work she is abundantly able to perform, and which she has so far ably and effectually accomplished. From some idiosyncracy the uterus is unable to effect a *speedy* contraction, and time is necessary. Let it take its own time, and yours likewise. Patiently wait, not only till nature has expelled the shoulders, but the hips also, and do not think of lending a finger's strength towards completing the delivery, so long as any portion of the child remains within the uterus. Every one knows that it has been long recommended to introduce the hand into the uterus to arrest flooding, by the stimulus of its presence. Does not the body or legs of the child do this work as effectually as the hand of the accoucheur?

In this method I have treated very many cases. One lady, several times confined in England, and once by the late Dr. J. Kearny Rodgers, I delivered soon after the regretted decease of that gentleman In every confinement she had bled profusely. At this labor everything was prepared for a similar scene of doubt and danger. I administered a half ounce of the tinct. of ergot as soon as the head pressed upon the perineum. It was soon expelled. I then repeated the dose, and in from ten to fifteen minutes the uterus itself, by repeated contractions, expelled the child in safety, and not a gill of blood was lost.

Dr. Isaac E. Taylor related a case to me in which he was called in consultation, very similar to this, where in several previous labors the hemorrhage had been profuse. He arrested the attending physician in his desire to deliver the child immediately, and suffered *forty minutes* to elapse after the head was delivered before the whole child was taken away from the mother. The child was purple in colour from the influx of blood into the head and from a temporary asphyxia, but subsequently did well, while the mother had no flooding of any account,—the perineum only showing a slight flow, not amounting to a hemorrhage.

Sometimes, however, the energetic, spasmodic action of the uterus does not permit the delay, giving no time for the uterus to contract firmly upon itself. In the case of the wife of a member of the Academy, who flooded after every labor to a really frightful extent, the uterus violently contracted until the child was completely expelled, and then relapsed into a state of inertia, accompanied by most profuse hemorrhage.

It is the duty, therefore, in all cases, to do as little as possible to assist the delivery in this last stage, and particularly when subsequent flooding is to be expected.

In *cases of abortion*, when the means already proposed in such cases do not arrest the abortive action, if the flow of blood be great, it is advisable to give large and repeated doses of the secale cornutum, in order not only to stimulate the uterus to a more speedy discharge of its contents, but also to press the fœtal head, or presenting portion, strongly against the opening os uteri, and thus to act as an internal plug. Should, however, the flow be excessive, in addition to this treatment it may be advisable to tampon the vagina. This may the more appropriately be done early in the flow, when the firm and slightly dilated os uteri evinces that some time must elapse before the contents can be expelled. In these cases it may frequently be well to pass a piece of alum into the vagina before using the tampon, to assist in the coagulation.

It should be remembered that the bleeding in these cases is especially efficient in relaxing the cervix, often a tedious and painful process, and that the hemorrhage to be particularly dreaded, arises in an after period from the retained placenta, of which I shall speak in its proper connection.

I, not unfrequently, as the head passes the vulva, and particularly when there is any fear of flooding, give a half ounce of the tinct. secale cornutum, as a precaution against flooding, and not as an adjuvant to the labour. The alcohol acts as a general stimulant, and the ergot tends to ensure a permanent contraction of the uterus.

When the child is delivered, then, not unfrequently, a flow commences from the placenta, which is more or less detached from the uterus. The first aim is to secure uterine contractions. It is worse than useless to deliver the placenta, if this is not effected; for if this is done, instead of a few sinuses left open and bleeding, there remain those of the whole placental surface, and the flow is thereby very much increased.

The uterine action should be excited by the administration of ergot in full doses; (I have not unfrequently given ℥vj. of the tincture in the course of an hour, and from which no injurious effect can be expected; by firmly grasping the uterus through the parietes of the abdomen; abdominal frictions; ice to the abdomen, alternated with cloths wrung out of hot water; the cold and hot douche alternated: these, one or all, will soon produce a temporary, if not permanent,

contraction. During this period the placenta should be delivered. If requisite, the hand should be introduced, and the placenta seized, and, with as little force as possible, removed. The uterus should be suffered to do this action by its own expulsive force.

There is much said about placentas being attached to the uterus, adherent placentas, &c. While I am far from doubting this condition of things to sometimes occur, (as in the case of a woman kicked in the side, by name Cornetty, at the Boston Poor-house in 1844), I am inclined to think it a rare occurrence. Every placenta is adherent, and I defy any one, in an uterus at its full distention, to peel one off from the uterine walls. The placenta is always adherent until the uterine contraction slides the uterus away from its surface, leaving it free. When, therefore, the hand is introduced, and an "adherent placenta" is discovered, it is but another method of stating that the uterus is found but partially, or not sufficiently contracted to have detached the placenta.

The texture of the placenta is of various characters. Sometimes we have one firm and tough. These can be torn off, with sufficient force, provided a border or an edge be found detached upon which to lay hold, or the uterus may be excited. Sometimes they are soft and pliable, when they are easily torn in pieces. Occasionally a small portion remains attached to the sinuses of the uterus, too small for the uterus to act upon as a foreign body. Great injury has, not unfrequently, been done, by attempting to detach this insignificant portion, under the idea of present hemorrhage, and future inflammation to ensue from its presence. The fact is, that in such a case no blood flows through the placenta, for the character is so changed as not to be able to perform this office. Indeed, I do not think there are many who imagine that a hemorrhage from the placenta ever occurs, but from the uterine walls, from which the placenta has been removed:—no blood can flow from the uterine sinuses, for they are firmly plugged by this remaining piece of placenta, so firmly that the plug cannot be easily removed; no hemorrhage can, therefore, ensue, unless it be from the neighbouring sinuses left patulous by the removed portions of the placenta. But if the remaining piece is small, it cannot interfere with the contraction, which will close up the open-mouthed vessels, and thus there will no bleeding ensue from the presence of this small portion remaining.

The only ill result that can therefore occur will be subsequent inflammation. In general this small portion will speedily be detached and discharged by the after-pains—at any rate it cannot be considered to be so fruitful a cause of subsequent inflammation as the forcible attempts to remove it.

It is frequently very difficult to know whether or not the whole placenta is delivered. From the irregular contraction of the uterus there frequently appears to be a portion remaining, when in reality the suspected part is the internal surface of the uterus, somewhat

rough where the placenta had been attached. In the case of a lady, to whom I was called at the request of the attending physician, a few months since, confined with a premature five months child, the os was rigid five minutes before the child was expelled. It suddenly opened, expelled the fœtus, and as suddenly closed, retaining the placenta within. When I saw her, the after-birth was partially delivered, in a mangled state, and when I removed the remainder (with much difficulty passing my hand within the cavity of the uterus), it was impossible to say whether it was all delivered or not. Interiorly the sensation to the hand indicated that a portion remained, but I concluded that it was but a part of the uterine surface, and I let it alone; the hemorrhage ceased, and no inflammation occurred, as undoubtedly there would had I attempted to remove this real or supposed portion.

This state of things is of not unfrequent occurrence in abortions and miscarriages. The uterine efforts force through the firm and imperfectly dilated os, the yielding fœtus, adapted by its shape to make an easy exit. When this occurs, the placenta is very generally left behind. Its broad, flaccid mass, resists the attempts of nature, not only to dislodge it, but to force it through the rigid and narrow opening. It, however, not unfrequently succeeds, so far as to separate a portion from its uterine surface. and thus to cause a continued hemorrhage. The feeble cord is, in the vain attempt to remove it, broken off, and the protruding membranes offer but a feeble hold by which to extract the bulky placenta.

In these cases, it is generally recommended to securely tampon the vagina, and to trust to time for the result. The action is the formation of a clot, thus arresting further hemorrhage, and the leaving the placenta, either to be expelled from the uterus by the further softening and enlargement of the os uteri, assisted by the normal contractions of the uterus, or assisted by ergot; or to be decomposed, and thus flow away, or be absorbed.

It may readily be seen that there are many risks to which the patient is exposed from this treatment. First, the clot intended to restrain further flow, will not be formed until the cavity of the vagina (which is always, no matter how thoroughly plugged, capable of containing more or less blood, perhaps an ounce or two only, but still enough to be often worthy of serious consideration), is filled. Next, the cavity of the uterus will, not unfrequently, continue to receive blood, and often to a very great amount—the uterus may be considered capable of expanding to the size to which it had attained when the labour commenced. In an abortion at two or three months, this quantity will not be very large; but if the patient has previously lost any considerable amount, this is deserving of especial attention.

The tampon, therefore, is to be considered a very valuable means of arresting hemorrhage in cases of abortion when the patient has not

previously flooded, but one of doubtful utility if the hemorrhage has been profuse, and rarely if ever to be used in any form of hemorrhage at or near the full time, after the child has been delivered. From the very fact of the tampon shutting the vagina, we are prevented from ascertaining the actual condition of things from time to time, and the result is an entire ignorance whether the continued prostration, the occasional faint feelings, dizziness in the head, *tinnitus aurium*, &c., be caused by a continued hemorrhage, or be but the results of the derangement of the circulation, from the previous great loss of blood, or nervous irritability.

The subsequent ill results from the use of the tampon need not here be enlarged upon. It is only necessary to allude to the uncertainty attending its final removal, and the fear of irritation or inflammation attending its too long use; the danger of renewed hemorrhage from its too speedy removal; the liability of uterine inflammation from the presence of a foreign body, the placenta and clot in the uterus; the chance of phlebitis from the absorption of pus, &c.

It is on this account that writers and practical men of late years have urged the immediate removal of the placenta. In abortions and miscarriages at an early period, generally there is little fear of a want of uterine contraction following. It is not the danger arising from this plan, but the difficulty of effecting it, that has prevented its general adoption.

How shall the small and fragile placenta be seized hold of and withdrawn? Some have recommended the introduction of one finger into the uterus, and bringing down one edge of the placenta, and twisting it round and round, not only thus to detach the entire mass, but to also so shape it that it may the more easily pass through the os. Where this can be done, by all means do it! But it should be remembered that in the great mass of cases, it is impossible to reach the os so as to pass one finger into its cavity, far less to effect any good result, if it arrive there, to say nothing of the utter impossibility of aiding the finger with the thumb of the same hand.

I have, however, effected the desired result, as already reported, in one case, by passing a small pair of polypus forceps through the os, and thus seizing the placenta, twisting it round, and by one or more operations of this sort completely detaching it and bringing it away. This operation I conceive to be the true method of treating these cases, particularly those in which a few more ounces of blood are to be feared as liable to be fatal. The tampon may be used if early applied, and where the pregnancy had not advanced more than three or four months, but never afterwards, unless as a temporary resort, while fitting instruments were obtained.

In cases of flooding at or near full time, when the afterbirth is retained, I have said that after uterine contractions are obtained, the placenta should be speedily delivered, and if necessary, by introducing the hand. When the hand is introduced, especially if cold, uterine

action will take place, very generally. But it should be especially remembered that the placenta is not to be violently torn from the uterus, and removed, unless there be uterine action sufficient to indicate to the operator that the uterus does and will fully contract, lest by so doing new sinuses be laid open, and fresh and increased bleeding be the result. Neither should the hand be removed until the uterus contracts down upon it as it recedes.

Some operators have recommended that a fresh lemon be introduced with the hand, and crushed within the cavity of the uterus, that its acid might act as a local stimulant. Others advise the injection of a large quantity of cold water. I have never personally used either of them, but while I may allow them merit as adjuvants, they cannot be used to the neglect of the plans and treatment I have already stated. I give it with the more confidence, from the fact that, although having had some experience in troubles of this character, I have never had a patient die, either from the immediate or subsequent effects of hemorrhage, from the uterus, accompanying labor.

Whether, therefore, the hemorrhage proceeds from the placenta—as a very few state,—or from the uterine walls, from which it has been torn,—as is the general opinion,—the facts observed by Dr. Mackenzie and others, in their experience, and in experimentation upon the lower animals, all unite in the propriety, aye, the absolute necessity of removing the placenta. To this I have added some important points, as they seem to me, to guide in performing this serious operation.

But the hemorrhage is not always arrested by this delivery of the placenta, and sometimes, when this is effected naturally, the hemorrhage commences for the first time,—how is this to occur, and how shall we meet its exigencies?

It occurs either from a want of, or an irregularity in the character of, the uterine contraction, in the first place, and secondly, from a mechanical impediment to the closing of the uterus, and a consequent hemorrhage from the patent mouths of the uterine vessels.

The uterus, not unfrequently, seems to have lost its power, and is unable at once to contract persistently and effectually. Its nervous energy is wanting. One seizes it with the hand through the abdominal walls, and it is hard and like a ball under the grasp, but in a few moments it is felt getting softer and softer, and finally the firm mass is not to be found. It seems to have eluded the grasp, but it has only dilated again, again by more external irritation to recontract. But with every dilatation its cavity is filled with blood, and with every contraction the gush is perceptible externally! Whence is this? And what is to be done?

Sometimes a firm contraction is felt, and yet the hemorrhage continues. This may arise from the hourglass contraction, which occurs alike after the placenta is delivered as before.

This irregularity of contraction is developed in different localities; more frequently, indeed, does it occur from the abnormal action of the circular fibres of the uterus, which, by their exclusive operation, cause that form known as the hourglass; but this same irregularity is manifested also upon the portion below and upon the neck, and thus causing a concealed internal hemorrhage, by the flow of blood being thus prevented from escaping externally and being perceptible. This form is particularly dangerous, on account of its subtile progress,—not unfrequently the patient is dead before anything is known of it.

In December, 1852, I delivered Mrs. Mason with forceps of a living child, and she was safely put to bed, and I remained with her about an hour. Happening to pass by about an hour afterward, I found that she was complaining of a disturbance of vision, and of hearing water boiling. I was informed that she had not had the least bloody discharge, and that these symptoms had come on after a slight vomiting. On examining the abdomen, the uterus was found much distended, as was afterward known, with clots of blood. This was properly attended to, and she subsequently had no further hemorrhage.—Many similar cases might be mentioned, for they are sufficiently common to have been noted by every practitioner.

It remains now for me to mention the remaining species of uterine hemorrhage, and that is where this is kept up from the presence of a mechanical impediment to the contraction of the uterus. This occurs in the following manner:—

When the placenta is expelled from the uterus, some small clots remain, and the uterus not being immediately contracted, the flow continues until a considerable clot fills the cavity of the uterus. When once this occurs, it is almost impossible for any amount of uterine contraction to expel it. It is not a plain, round, smooth mass, but its surface is closely adherent to the uterine parietes. Every one has seen with how much force the blood drawn into a bowl adheres to it, so that the vessel may be everted without disturbing its contents. This adherence is equally strong to the uterine parietes, and far more extensive. In addition to this, upon the surface to which the placenta was attached, the clot is prolonged into the uterine sinuses, constituting so many firm bonds of adhesion. The strength of this clot is only fully appreciated by those who have attempted to remove them.

Now in all these forms of hemorrhage, occurring after the delivery of the placenta, but one course of *treatment* is called for. The hand should be passed into the uterus. In the first place its introduction will overcome any irregular contraction, for it should be passed through the hourglass, or any other irregular contraction, until it arrives at the fundus. Next, its presence as a foreign body will stimulate the uterus to expel it, and by so doing effect the desired result. Finally, with the hand we should break up the clots, and sweep them all out of the

uterus and vagina. The uterus will then contract down to its proper size. It is then to be retained in that position, by the hand external to the abdomen, by the administration of ergot, &c.

The importance of this method of treatment is not generally acknowledged by practitioners, especially in the last form of hemorrhage mentioned. Many hesitate upon breaking up these clots, which must be done again and again, as fast as they may form. It appears to many that a clot always serves to arrest a hemorrhage, and so it does in perhaps every instance except in the hemorrhage from the uterus after the delivery of the placenta. In this case, as I have attempted already to show, the bulk distends the uterus, and thereby forces open the uterine vessels which are closed, by withdrawing the clot, and the consequent contraction. It should be remembered, and it is generally lost sight of, by the physician, in his anxiety that the patient is as thoroughly bled, whether the blood be drawn into a bowl, is received into the bed clothes around her, or is clotted in the cavity of the uterus.

A most marked instance of the great importance of this method of treatment, occurred in a case in which I had been called in consultation, in consequence of some difficulty occurring in a breech presentation at a first delivery. The patient, a young woman, had been long ill, with intermittent fever, had an enlarged spleen, &c., and was delivered of twins, both breech presentations. Some ten minutes after the labour was finished, and she had been carefully bandaged, &c., our attention was particularly drawn by a sudden vomiting, almost coincident with which a gush of blood from the vagina was heard. Ergot was given, cold applied to the abdomen, and contractions brought on to such a degree that the uterus was hard and firm under the hand, but larger than when it contained the placenta. The contraction continued persistent; still she was faint, almost pulseless, covered with a cold sweat, and at intervals much worse. It was evident that the hemorrhage was continuing internally, although none escaped. But one duty remained. Introducing the hand I swept out every clot, the uterus contracted to a proper size, no further hemorrhage ensued, and the patient was saved, who, by any other mode of treatment, would have been lost.

In the remarks already made, it will be seen that I have omitted to speak of any methods of assistance usually enumerated, and this is because they are only adjuvants, perhaps of some little value in connexion with other treatment, but not to be attended to to the neglect of the means already dilated upon. I will mention two of them. The bandage applied to the abdomen; compression of the descending aorta.

The bandage, or roller, applied generally after labour, is very often productive of more injury than benefit. In cases of severe flooding, it is generally inadmissible, and for the simple reason that it is in the way. Its presence prevents the manipulation of the abdomen, the

application of ice, the douche, &c., and prevents the attendant from obtaining the very important information of the presence or absence of uterine contractions. There are some who hasten to put on the bandage after delivery, as if the life of the patient depended upon it. Nature puts no bandage upon the cow, or the sheep, and in the Lying-In Hospitals of Paris, the midwives put none on the women. The cows and sheep have no hemorrhage, and out of some seven hundred women that I saw confined at l'Hopital des Cliniques, under the charge of Dubois, I did not see one solitary case of flooding.

A woman, after confinement, needs a bandage just as much, or rather, upon the same principles, that guide its use in case of tapping for ascites. After all danger of hemorrhage is passed, a bandage may be applied for support to the abdomen.

When properly done, it should be about half a yard wide, and applied much lower down than usual, the first pin should be placed at the lowest border, near the commencement of the upper third of the thigh. Over the uterus the pressure should not be great, but tighter above it, so that the result is, that the uterus is rather pressed down than upon.

Sometimes it is desirable to place a pad under the bandage, but this should not be done upon the uterus, but above it, so as to prevent the uterus from expanding, while at the same time it affords some pressure upon the descending aorta, immediately before its bifurcation.

Compression of the aorta, is a form of treatment often more theoretical than practical, and where, from the thin habit of body, it is practical, it is of less value than would be supposed. In the cases where I attempted to put this suggestion in practice, I have found little benefit to flow from it.—*American Med. Monthly Journal, June* 1855, *p.* 432.

114.—*Instrument for the Removal of the Ovum in Abortion.*—Dr. Churchill exhibited to the Dublin Obstetrical Society, some time since, an instrument which he thought might be useful for removing the ovum when it protrudes just through the os uteri in cases of abortion, and especially in those cases where an undilatable condition of the vagina forbids the introduction of more than one finger. The instrument consists of a steel rod (electro-plated) passing through an elastic catheter. One end of the steel rod is divided into three prongs, curved at their points, and divaricating, but closed by sliding the catheter towards the end. At the upper end, the catheter is guarded by a silver rim, and at the lower, it is furnished with rings, by which it can be moved up and down with one hand. The instrument guided by the forefinger, is to be passed up to the protruding ovum, and the catheter being withdrawn so as to allow the points to separate as widely as needed, the ovum is to be carefully caught, and

the instrument, again closed, withdrawn. If the ovum be not very much decayed, or very adherent, it will be brought away.—*Dublin Hospital Gazette.—Lancet, July* 28, 1855, *p.* 82.

115.—CASE OF INDUCTION OF PREMATURE LABOUR FOR ACUTE CHEST COMPLICATION.

By Dr. Alexander Keiller, Physician to the Royal Infirmary, Edinburgh.

(Reported by Mr. H. Marshall, Resident Assistant.)

The subject of this case was recently admitted into one of Dr. Keiller's wards in the Royal Infirmary, suffering from a considerable affection of the lungs, for which it was subsequently found necessary to induce premature labour.

"Hannah Donaldson, aged 26, was admitted into the Royal Infirmary on the 21st Feb. 1855. At the time of her admission she was pregnant, and thought she was about a month from her confinement. She stated that she had been from her childhood very much troubled with shortness of breath, but unaccompanied with cough, with the exception of a short time before the birth of her first child (15 months since.) Both her father and mother were asthmatical.

"Two days before admission, her present attack commenced with nausea and vomiting, which were followed by a severe cough. She was seen first by a dispensary pupil, who cupped her over the sternum, but drew only a small quantity of blood.

"On her admission (on the afternoon of the 21st Feb.), respiration was very hurried and difficult, her face congested, and her pulse rapid and weak. Her cough was very severe, with frothy expectoration. On auscultation, coarse crepitation was discerned all over the posterior part of both lungs, and anteriorly moist rales were plentifully heard. Percussion was normal. She appeared labouring under a very severe attack of capillary bronchitis; and was ordered a mixture of carbonate of ammonia and decoction of senega. The dyspnœa increased in the evening, but got better as the night advanced. On the following day she was somewhat better. The difficulty of breathing less, and the pulse stronger; antimony was prescribed in small and repeated doses, the former mixture being still continued. On the evening of the next day (the 23rd) she was decidedly worse, the dyspnœa appearing likely to prove fatal. The pulse became very weak. She was ordered wine, and chloroform internally, from which she experienced considerable relief. Dr. Keiller saw her about 10 p.m., and determined to bring on labour. At that time the fœtal heart could be heard towards the right iliac region. Dr. Keiller thought it better to deliver her in such a way as to give the child the best chance of surviving; and, therefore, instead of puncturing the membranes, with the view of merely diminishing the size, and thereby relieving the chest-symptoms

adopted the following mode. Having laid the patient on her left side (though the difficulty of breathing was greatly increased by this position), he introduced Dr. Weir's instrument for inducing premature labour, about three inches into the os uteri, between the membranes and the anterior wall of the uterus. About a quart of warm water was injected, and a sponge-tent immediately afterwards introduced within the os. Two hours afterwards (about half-past one, a.m.), water was injected into the vagina, so as to distend it. Soon after 4 a.m., symptoms of labour first appeared, the sponge-tent being then expelled when the patient was at stool. From this time the labour advanced, the os slowly but regularly dilating, and on subsequent examination, a foot and the umbilical cord was felt presenting. The liquor amnii came away about 10 o'clock, and both feet and a large loop of the umbilical cord descended immediately into the vagina. The cord, however, was perfectly pulseless, and the case was allowed to proceed without interference, and the child was born about half-past 10 o'clock. The placenta was expelled in about half an hour. The discharges were moderate in amount, and no bad symptoms connected with the labour subsequently occurred. The chest-symptoms were decidedly relieved after delivery, and, with the exception of a few days' diarrhœa, and a slight attack of pleurisy on the right side, she steadily continued to improve, and left the infirmary on the 17th of March, at her own desire, nearly quite well."

The instrument referred to in the above Report is that invented by Dr. Graham Weir, who has contrived it with the view of combining the two plans of Hamilton and Kiwisch; the former consisting of the uterine introduction of a female catheter, and the other, in the vaginal injection of tepid water; both modes of inducing premature labour acting somewhat in the same way, viz., by separating the membranes to some distance from the vicinity of the os.

Dr. Weir's instument consists of a flattened silver tube, similar to a large female catheter, and which is attached, when used, to an ordinary injecting syringe, or to a Higginson's pump, which is better adapted for the purqose, as it can be more easily worked by one hand, the other hand being thus left at liberty to properly direct the tube within the uterus.

The tube, or large flattened catheter, measures about seven and a half inches in length, and is nearly half an inch in breadth. Three inches from its extremity it is bent in a curved form, to such an extent as to throw the point of the tube about one inch off the straight line; on each side are situated five small openings, which are placed at regular intervals, extending back one and a half inches from the point of the instrument,

In using it the tube is first introduced cautiously within the os to the extent of its curve, viz., about three inches, and then, by means of the attached syringe, the tepid water is injected so as to act by slowly separating the membranes.—*Edinburgh Med. and Surg. Journal Case Book, April* 1855, *p.* 39.

116.—ON THE CONTAGIOUS CHARACTER OF PUERPERAL FEVERS.

By Dr. Charles D. Meigs, Philadelphia.

[Is the disease communicable by a third party from a patient labouring under it to another during or after her delivery ?]

1. It seems impossible to doubt that contagious matter capable of exciting puerperal fever may be conveyed by a third party unaffected by it ; for example, in the cases already mentioned of puerperal fever following the services of medical men and nurses who were in attendance upon erysipelas immediately before. The cases are too remarkable and too numerous to be regarded as coincidences, nor would even the prevalence of an epidemic of puerperal fever at the time invalidate our conclusions ; it might certainly render the cause more influential.

2. It is the recorded opinion of Rokitansky and Semelweiss that morbid matter acquired in the dissection of subjects not dying of childbed fever may be conveyed by the dissector and excite disease in a patient delivered by him ; and to this, among other causes, has been attributed the prevalence of puerperal fever in the wards of the Vienna Lying-in Hospital. A celebrated foreign practitioner attributed two outbreaks of this disease among his private patients to his having handled morbid specimens just before attending the patient in her accouchement.

3. We should, therefore, have less difficulty in believing that similar effects may be produced by those passing from the dissection of puerperal patients to the delivery of healthy ones, especially if the most rigorous precautions were not observed. For instance, in the autumn of 1821 Dr. Campbell, of Edinburgh, attended the dissection of a married woman who died of the disease, after an abortion of the early months ; he removed the pelvic viscera and external parts, and carried the whole in his coat pocket to the class room. The next morning, dressed in the same clothes, he assisted with some of his pupils at an instrumental delivery at Bridewell. This woman was seized with the same affection, and died. The same night he accompanied Dr. Orr, to the delivery of a woman residing in the north back of the Canongate ; she was equally unfortunate ; and three other poor women shared the same fate in quick succession. In a subsequent year, 1823, he assisted at the dissection of a childbed fever case, but could not wash his hands with the care he desired : thence he went to attend two other women in labour, both of whom died.

At a meeting of the College of Physicians, Philadelphia, U. S., Dr. Warrington stated that after assisting at an autopsy of puerperal peritonitis he was called upon to deliver three women in rapid succession. All these women were attacked with different forms of what is commonly called puerperal fever.

"Mr. Davies states that in the autumn of 1822 he met with twelve cases, while his medical friends in the neighbourhood did not meet

with any, or, at least, with very few. He could attribute this to no other cause than his having been present at the examination of two cases, and his having conveyed the infection to his patients, notwithstanding every precaution."

"A young surgeon shortly after examining the body of a sporadic case that had died, delivered three women, who all died of puerperal fever."

"Mr. Ingleby states that two gentlemen, after the post-mortem examination of a case of this disease, went in the same dress, each respectively, to a case of midwifery. The one case was attacked in thirty hours afterwards, the other in three days. One of the same surgeons attended, in the same clothes, another female, and she was attacked on the evening of the fifth day, and afterwards died."

Now with regard to the cases attended immediately after the post-mortem dissection, there seems little room for doubt as to the exciting cause of the fever. It may have been conveyed in the clothes or on the hands of the accoucheur, but it is, at any rate, adequate to the effect, and the sequence is too simple and too close to be rejected.

4. Can we venture to say the same of the following case.

"Dr. Merriman mentions in the 'Lancet' for May 2, 1840, that he was present at the examination of a case of puerperal fever at two P.M. *He took care not to touch the body.* At nine o'clock the same evening he attended a woman in labour; she was so nearly delivered that he had scarcely anything to do. The next morning she had rigors, and died in forty-eight hours."

We do not know whether puerperal fever was epidemic at the time, but the cause suggested seems so inadequate that we should be inclined to look for some other explanation.

5. So far, then, we have seen medical men engaged in handling morbid matter, their dress and persons exposed to the effluvium from dead bodies, and passing directly to attendance upon lying-in women; here we have a distinct appreciable exciting cause, adequate to the production of disease in healthy persons, and which may have been, and probably was, conveyed to the patients who were first attended, and in whom puerperal fever appeared. But in several instances the disease was not confined to the first woman attended, but appeared in others delivered successively. How are we to explain this, and how can we explain the pertinacity with which puerperal fever seems occasionally to track the footsteps of one or two practitioners, whether at first lighted up by morbid matter derived from dissection or not? Take the following examples. Dr. Gooch mentions that—

"A general practitioner, in large midwifery practice, lost so many patients from puerperal fever, that he determined to deliver no more for some time, but that his partner should attend in his place. This plan was pursued for one month, during which not a case of the disease occurred in their practice. The elder practitioner being then sufficiently recovered, returned to his practice, but the first patient he attended was attacked by the disease and died."

This latter fact seems to us to prove that the disease was epidemic at the time. Similar instances have come to our knowledge more recently.

"Dr. West, of Philadelphia, states that seven females delivered by Dr. S. Jackson, in rapid succession, were all attacked with puerperal fever, and five of them died. These was the only cases that occurred in that district, for the women became alarmed, and sent for other assistance."

"A Physician in Boston, U.S., had the following consecutive cases:—On March 24th, April 9th, 10th, 11th, 27th, and 28th, and May 8th, seven in all, of which five died. He then left town."

Another physician writes to Dr. Holmes as follows:

"The first case was in February, 1830, during a very cold time. She was confined on the 4th, and died on the 12th. Between the 10th and 28th of this month I attended six women in labour, all of whom did well except the last, as also two were confined March 1st and 5th. Mrs. E, confined February 28th, sickend and died March 8th. The next day, March 9th, I inspected the body, and the night after attended a lady, Mrs. G., who sickened and died on the 16th. The 10th I attended another, Mrs. B., who sickened but recovered. March 16th I went from Mrs. B.'s room to attend a Mrs. H., who sickened and died on the 21st. The 17th I inspected Mrs. G. On the 19th I went directly from Mrs. H.'s room to attend another lady, Mrs. G., who also sickened and died on the 22nd. While Mrs. B. was sick on the 15th. I went directly from her room, a few rods, and attended another woman, who was not sick. Up to the 20th of the month I wore the same clothes. I now refused to attend any labour, and did not until April 21st, when, having thoroughly cleansed myself, I resumed my practice, and had no more puerperal fever. The cases were not confined to a narrow space. The two nearest were half a mile from each other, and half that distance from my residence. The others were from two to three miles apart. There were no other cases in their immediate vicinity."

Dr. Ramsbotham has known the disease to spread through a particular district, or to be confined to the practice of a particular person, almost every patient being attacked by it; whilst other practitioners had not a single case; and he considers the distemper as being capable of conveyance not only in common modes, but through the dress of the attendants on the patients.

In Sunderland, 40 out of 53 cases occurred in the practice of one surgeon and his assistant.

Dr. Roberton, of Manchester, states, that between the 3rd of December, 1830, and January 4th, 1831, a midwife attended 30 patients of a public charity, 16 of whom had puerperal fever, and all died. Other midwives of the same institution attended 380 women during the same time, and none suffered from it. He also mentions the case of a practitioner, who introduced the catheter for a poor woman in

puerperal fever, late one evening, and attended a lady in her confinement during the same night, who was attacked with puerperal fever on the same day.

Analogous cases have been recorded by Dr. Pierson, of Salem, U.S., Dr. Peddie, and Mr. Beecroft; and such examples are, doubtless, very startling, and requires a careful examination, to ascertain their exact value as bearing on the question at issue; but we shall first hear what Dr. Meigs says on the subject. His first argument is from personal experience.

"I have practised midwifery for many long years. I have attended some thousands of women in labour, and passed through repeated epidemics of childbed fever, both in town and hospital. After all this experience, however, I do not, upon careful reflection and self-examination, find the least reason to suppose that I have ever conveyed the disease from place to place in any single instance. Yet for many years I carefully considered whether such a transfer by a third person might be possible, and carefully read the statements of various authors to that effect. In the course of my professional life, I have made many necroscopic researches of childbed fever, but never did suspend my ministry as accoucheur on that account. Still I certainly never was the medium of its transmission. I have, in numerous instances, gone from the bedside of women dying of childbed fever, whether sparodic, or the most malignant degree epidemic, without making my patients sick. I have also endeavoured to assist my brethren, when they had such cases, and I had none.

"In a series of labours, 468 in number, and beginning with No. 1, I find that Nos. 18 and 19 were affected, and that No. 18 died with childbed fever; No. 31 was sick, but recovered; Nos. 195 and 259 were sick, but recovered; but 291 died, as did also 293. Nos. 332, 339, 435, 444, and 445 were attacked and recovered. The above cases—viz., 18, 19, 31, 195, 259, 291, 293, 332, 339, 435, 444, 445, 455, are, in all, 13 cases in 468 labours, of which 3 died and 10 recovered. Now, if I was the medium of contagion for any one of that series of 468 confinements, why did I poison them in the ratio and order above set forth; and why did I not communicate the disease in more than 13 out of 468 cases? What became of my nebula from 31 to 195; to 259, and between 291 and 445, and so to the end, or 468? Such a table is far more easily explained by regarding the falling-out of the cases as coincidences and accidents, than as material causations, through a private pestilence."

Again, as regards the singular limitation of the disease to the practice of one person, Dr. Meigs observes:

"At page 631 of my work 'On Obstetrics,' second edition, I have related the circumstances attending the practice of a physician of Philadelphia, who, in one of our epidemic seasons, lost a considerable number of women in childbed. His patients were scattered over a great superficies of the city and districts, some of them being more

than two miles from the others. At that time many women were attacked, in various parts of Philadelphia, as well as in the State of Pennsylvania; yet so far as has come to my knowledge, no other medical gentleman happened to encounter such a great number of childbed fevers as he did. I visited, in consultation with him, some of the very worst of the cases, and touched the patients, and was as liable to imbibe or to be clothed with the effluvia from their bodies as he was; nevertheless, I did not carry poison or other cause of disease to any patient of mine; and if not I, then how should he become capable of doing so? He is a gentleman who is scrupulously careful of his personal appearance, of great experience as a practitioner, and well-informed as to modern opinions on the contagion of childbed fever. Still those of you who are contagionists will say that he carried the poison from house to house, and if so, then you ought to give some *rationale* of the fact. Did he carry it on his hands? But a gentleman's hands are clean. Did he carry a nebula or halo about him? Then why not I also? If the nebula adhered to his clothing, it might as well have adhered to mine.

"What will you say, young gentlemen, of the experience of my friend, Dr. D. Rutter, formerly of Philadelphia, but now of the city of Chicago, who passed through terrible scenes here, in an epidemic of childbed fever, some years ago, when he had a most extensive midwifery practice in town and country? During that sad time, I saw several fatal cases with him in consultation; and though he seemed to be tracked by the cause of the disease, to judge by the numerous attacks of it in his lying-in patients, I was not tracked by it. I took no precaution, except such as every decent man should be supposed always to take; yet I never did carry the disease from his cases to any houses where I visited lying-in women. But he was charged with being a carrier of contagion. How could he carry the cause? What was the cause? Was it some ozone that stuck to his hands or coat? Was it a nebula, a halo, or a miasm that mixed with the hairs of his head or the woollen or cotton fibres of his dress? or an exhalation from his skin, or a halitus from his lungs, like the fiery breath of Cacus? And can you say of him, as Virgil sings—

> "'Paucibus ingentem primum, mirabile dictu
> Evomit.'—*Æneid*, lib. viii. p. 252.

Come now, was not such a poison more sticky than bird-lime, seeing that Dr. Rutter, worn out with fatigue, and wounded in spirit by his cares for the unfortunate victims of an epidemic disease, left the city for the purpose of gaining some strength, and to escape from the repetition of such disheartening labours, and that even a quarantine could not liberate him from this poisoned cloud? One might hope it would have been blown away by the wind, or that it would have evaporated or become too dilute to kill, after a ride of seventy miles, and an absence of ten days. But it happened, after this rustication of ten days, at a distance of thirty-five miles from the city, that your bird-lime or

cloud still adhered to him, as your contagionists would say. And more than that, he could not even wash it away, or shave it off; for upon coming back to the city, and to his professional toil, before he engaged in practice again he caused his head to be close shaved; he entered a warm bath and washed himself clean; he procured a *new wig, new clothes, new hat, new gloves, and new boots.* He did not *touch* anything he had worn, and took the precaution to leave his pencil at home, and his watch. Well, what do you think happened next? He went out to attend a lady in labour, who had a favourable parturition, yet was next day assailed by a horrible childbed fever, of which she died, in spite of all his efforts, and mine to help him; for he called me in consultation immediately after being summoned himself to her chamber. I know that that lady died with peritonitis. I was a great deal with her in her illness, but she did not poison me or my clothes; for although I went on with my practice, I poisoned nobody, and made nobody have even so much as a finger-ache.

"Dr. Rutter repeated this attempt at personal disinfection at a subsequent period, which was two years later, and with the same ill-success. The gentleman was much and disparagingly spoken of on account of the above-mentioned events in his practice, which I cannot but regard as both cruel and unjust, particularly as his success in the treatment was most brilliant; for during the epidemic he had charge of 70 cases, of which he lost only 18, and I know not the man who can boast of a higher triumph of his art of healing in this malady."

Let us now look a little closer into this matter. The broad fact apparently established by the foregoing observations is, that puerperal fever does sometimes prevail chiefly, or is altogether limited, to the patients of certain practitioners, and the question arises, To what is this owing?

Whilst we feel compelled by the evidence on record to admit the possibility of puerperal fever being conveyed and communicated or excited by those who attend midwifery cases after being employed in dissection or post-mortem examinations, and also by those who are much in contact with the patient or the discharges, especially if strict precautions are not adopted as to cleanliness and change of dress, we do not feel that in other cases, where no such conditions exist, the evidence at all justifies our attributing the spread of the disease to contagion, and we think fewer difficulties and contradictions are incurred by attributing its extension to epidemic influence, and its limitation to conditions or circumstances of which we are at present ignorant.—*British and Foreign Med.-Chir. Review, Oct.* 1855, *p.* 332.

117.—ON THE UTERINE SOUND.

By Professor Scanzoni.

The following abstract of some remarks by Professor Scanzoni on the uterine sound is extracted from the 'Monatsschrift für Geberts-

kunde und Frauenkrankheiten' for May 1855. Having used it for eight years, he has not found it to merit the value set on it by some obstetricians. He considers its use according to the different objects for which it is employed.

1. As a means of determining the permeability of the cavities of the cervix and body of the uterus, which is indispensably necessary for the diagnosis of all forms of imperforation, obliteration, or contraction of the organ. Professor Scanzoni here says that it is often difficult and even impossible to introduce the sound when none of these morbid states are present; so that we cannot always arrive at a conclusion as to the permeability of the uterine cavity. If atresia of the uterus is indicated by retention of the menstrual fluid, then the use of the sound is superfluous. The atresia which occurs in old age at the upper part of the cavity of the cervix cannot be distinguished by the sound from simple narrowing; and at this age the diagnosis is of no practical interest.

2. As a means of diagnosis in pregnancy, the uterine sound can have no use. The mucous plug is not, however, as Kiwisch has asserted, an impediment to its passage.

3. As a means of determining the long diameter of the uterus, for the diagnosis of morbid changes in its size. This it is possible to accomplish, but it is not important for diagnosis and treatment. In enlargement from chronic metritis, it is not always possible to ascertain the measurement; and, though some have asserted that the presence of the sound in the uterus may be ascertained by feeling it through the abdominal walls, Scanzoni says that the uterus is sometimes so thickened that this cannot be done. The uterine sound is not to be depended upon as a guide in the diagnosis of thickening of the walls of the uterus from fibroid tumours, for which purpose some have stated it to be adapted.

4. As a means of examining the uterus when it is immovably fixed by other swellings. In these cases, Dr. Scanzoni allows it may be sometimes useful; but he does not consider it absolutely necessary, as a manual examination is generally sufficient, and the use of the sound is often very painful, and may produce inflammation and other morbid effects.

5. As a means of ascertaining the thickness and resistance of the walls of the uterus. This is of little use in practice; as the thickness of the uterine walls may vary in the same person; and very often the thickness of the abdominal wall, or the presence of a tumour, makes it impossible to feel the uterus, which has been raised on the end of the sound.

6. As a means of ascertaining whether the uterine cavity is single or double. This has not yet been realised in practice.

7. As a means of determining the presence of anteversion and retroversion, Dr. Scanzoni regards the sound as possibly useful, but not absolutely necessary.

8. As a means of ascertaining the nature of the contents of the uterus the sound can be of no value, being smeared with lard or oil.

9. As a means of determining the irritability of the uterus. Here Scanzoni advises that when, by introducing the hand, or by the other symptoms, a painful state of the uterus is ascertained, the use of the sound should be desisted from.—*Association Med. Journal, June* 1, 1855, *p.* 516.

118.—CHRONIC INVERSION OF THE WOMB.—REMOVAL BY LIGATURE.

By T. P. Teale, Esq., F.L.S., Surgeon to the Leeds Infirmary. (Reported by Mr. Scarth.)

[This woman was forty-eight years of age, and the mother of eight children. When admitted into the Leeds Infirmary she was in a state of extreme exhaustion and anæmia. The case presents several points of very considerable interest, as the absence of the ordinary causes, the unusual time at which the symptoms first made their appearance, and there not being the slightest constitutional irritation from the application of the ligature.]

She states that up to the time of her last labour, which occurred five years ago, she had always enjoyed good health. From this labour, which was more tedious than usual, she recovered favourably, and continued to enjoy fair health for two years and a-half, with the exception of suffering from pain in the lower part of the back. About this time, the menstrual discharges became more profuse, and of longer duration, and were attended with bearing-down pains. In a short time the discharges became incessant both night and day, varying only in intensity at different times. This state having continued more than two years, she came to the Infirmary, blanched and feeble, and incapable of exertion.

On examination, a tumour of firm, but not very hard consistency, was found projecting through the mouth of the womb into the vagina. The tumour was of rounded form, but a little flattened in the antero-posterior direction; its length $1\frac{1}{2}$ inch, breadth at the middle part about $1\frac{1}{2}$ inch, at the neck which was surrounded by the mouth of the womb, one inch. The mouth of the womb only loosely encircled it, and would allow of the top of the finger being inserted to the extent of the third of an inch, so that the points of inflexion of the tumour could be distinctly felt all round.

The patient having been examined by Mr. Teale, along with his colleagues, Mr. Smith and Mr. Samuel Hey, there was no difficulty in deciding that the complaint under which she laboured was inversion of the womb; but the time and mode of its occurrence was not apparent from the account given by the patient, nor was any light thrown upon them by the inquiries subsequently made. Mr. Teale wrote to the surgeon who attended her in her last labour, five years ago: this

gentleman stated that he found in his books the entry of her delivery at the time mentioned, but without a note of any unusual occurrence; his practice being to enter a short notice whenever anything of importance connected with the labour occurred. His books also showed that no attendance beyond what was usual was required, and that she recovered without any material drawback. He afterwards lost sight of her. The patient further stated that she never had a miscarriage since her labour five years ago. The inversion, then, if it had occurred at the time of the last labour, must have been unattended at the time by any of the symptoms indicative of this accident, and must have remained two years and a-half without causing inconvenience, which is highly improbable. On the other hand, if it occurred two years and a-half ago, when the symptoms indicative of it commenced, it is remarkable that it should have arisen independently of pregnancy or polypus tumour.

On the 6th of April, Mr. Teale, having drawn the tumour downwards by hooked forceps, transfixed its neck by a nævus-needle covered with a double ligature. The loops of string being divided, the two ligatures were then tightly tied, one on each side of the neck of the tumour. The patient was placed in bed, and an opiate was given to her.

She proceeded from day to day without pain or fever, the pulse never rising above 85. On the seventh day after the operation, the strangulated mass was found loose in the vagina, and was removed in a softened and putrid state. The central portion of the tumour, which alone remained free from decomposition, showed under the microscope the natural structure of the womb.

The bloody discharges ceased immediately after the operation. On the sixteenth day, however, there was a slight discharge of blood from the vagina, attended with pain in the pelvis, and for a few days with slight phlegmasia dolens of the right thigh. After this no discharge of blood took place. On the 1st of May she was able to walk about, had greatly improved in condition, and was made an out-patient.

For a few weeks she continued to attend, having remained free from pelvic disturbance, but occasionally suffering from epistaxis.—*Med. Times and Gaz., Sept.* 1, 1855, *p.* 213.

119.—ON DERANGEMENT AND LOSS OF SIGHT IN WOMEN DURING SUCKLING.

By Dr. R. Taylor, Surgeon to the Central London Ophthalmic Hospital.

[Whatever reduces the powers of the system, and impairs the quality of the blood, such as diarrhœa, leucorrhœa, or excessive natural secretions, so as to act as a drain on the system, may be followed by impairment or loss of vision, which, when detected early, is very amenable

to treatment, whereas, when neglected, it not unfrequently terminates in total blindness.]

What is popularly termed "weakness of the eyes," in other words, inflammation of the palpebral conjunctiva, with slight intolerance of light, is the first symptom, and one which is very common, even with robust women, after eight or nine months' suckling of a strong child. In the majority of instances, it goes no further, and when the infant is weaned, the eyes recover their strength. In other cases, however, the sight itself is affected, and a thin grey mist appears to intervene between the eye and the object of vision; this may be permanent, or it may disappear on lying down, or after taking a full meal, or any stimulant. Gradually the dimness increases until the outlines only of large objects can be distinguished, and, finally, even the perception of light from darkness is lost. In some instances, the last stages of the disease are sudden; the patient retires to rest with a certain amount of vision, and awakes in total darkness. Occasionally, there are variously-formed luminous or coloured spectra; more commonly, the obscurity is caused by a mist of gradually increasing density. I have seen very few cases in which the eyes have suffered simultaneously to an equal degree; generally, one is much in advance of the other, so far as the disease is concerned; thus, with one eye a moderate-sized print may be read, while the other is completely obscured. Persistence in the exciting cause, however, and still more, injudicious treatment, rapidly brings them both to the same condition.

Most frequently there are not any objective symptoms, with the exception of a certain amount of congestion of the palpebræ, and, sometimes, also, of the ocular conjunctiva; occasionally, but by no means invariably, there is some sluggishness of the pupil. In exceptional cases, of which I have seen but few, there has been manifest inflammation of the whole eyeball, as indicated by a zone of distended vessels around the cornea, a discoloured iris, a distorted pupil, and an effusion of soft, greyish-coloured lymph between the pupillary margin of the iris and the anterior capsule of the lens. I have never seen the cornea in any measure affected, though, from Dr. Mackenzie's description, phlyctenulæ and ulceration appear to be frequent complications of the disease as it occurs in Glasgow. When there are outward evidences of ophthalmitis, there is always more or less pain, sometimes very severe. In cases where there are not any objective symptoms, there is seldom more than occasional deep-seated, dull aching, or there may be complete absence of any uneasy sensation.

The disease attacks women at all periods of life during lactation. As might be expected, it occurs most frequently in weak, ill-nourished, or strumous subjects; but it may be induced even in those who are naturally of the most robust constitution, by undue "lactation," as it is termed, or, in other words, by the practice which is almost universally prevalent among the lower orders of the metropolis, of keeping

the infant almost continually at the breast, by night as well as by day. At this hospital, the majority of patients have been women from 20 to 30 years of age; the oldest that has come under my care has been 42. Some had suckled their children for two or three months only, others for upwards of a year; all had done so in the injudicious manner above described, and all presented the ordinary symptoms of anæmia in a marked degree.

In the above description, it is evident that several varieties, or rather degrees, of disease have been included, and the distinction must be carefully made in attempting to form any opinion as to their pathology. In one class of cases it is obvious, from the external appearances, that all the tissues of the eyeball are involved in inflammation; in a second, there is not any reason to suppose that inflammation is present, even in the slightest degree; the vision is impaired or improved according as the patient is exhausted or stimulated—in the erect or recumbent posture. This condition is very commonly seen in patients suffering from hemorrhage, whether sudden and profuse, or in smaller quantity and long continued, and is unquestionably due to the deficiency of blood thus occasioned. A certain supply of healthy blood is as necessary to the eye as to any other organ of the body, in order that its functions may be duly performed—in fact, the portion of blood which is, for the time being, co-operating with the retina and other tissues in affecting vision, is as much entitled to be described as one of the ocular tissues as any of the others; it differs chiefly in being more rapidly changed. In the disease in question, the blood is not only diminished in quantity, but impaired in quality; and the eye consequently suffers in common with every other organ of the body.

In a third class of cases, the vision is not subject to such fluctuations, but is permanently impaired, often to a very great extent; while at the same time there are not any objective symptoms to guide us in forming our opinion as to the condition of the retina. In many, probably in most of such cases, there can be little doubt as to the correctness of Dr. Mackenzie's assertion, that "the most momentous part of the disease is really a chronic inflammatory state of the retina." (On Diseases of the Eye. Ed. 4, p. 577.) This is confirmed by the permanence of the blindness in neglected cases, and by the gradual manner in which it yields to a system of treatment based upon this view of its pathology. But this explanation is not admissible in every instance; the unvarying nature of the blindness, even when it has continued for many days, is not of itself sufficient evidence to warrant us in concluding that the retina is inflamed; for we find by experience, that such cases frequently recover rapidly and completely, even from the most total darkness, under a system of tonic treatment alone—a result which our present pathological and therapeutical knowledge would forbid us to expect, were the blindness due to inflammatory deposit. I have a patient at present under my care

in whom the recovery from total darkness in one eye, to perfect vision, was complete in ten days; a violent attack of diarrhœa then brought on a relapse, so that she could not, with the eye in question, decipher the largest type; she has now, after the lapse of a week, very nearly recovered, under the use of tonic medicines alone, and without any local applications, such as leeches, blisters, or lotions.

A satisfactory explanation of such cases, which are otherwise very puzzling, has, I think, been recently discovered by means of the ophthalmoscope. It has been found by those who have employed this instrument extensively, that, independently of inflammatory action, an effusion of fluid may take place between the choroid and the retina, perhaps œdema of the latter tissue itself, by which it is raised above its ordinary level, forming a projecting ring around the entrance of the optic nerve, and thus undergoing an amount of compression quite sufficient to account for any degree of disturbance of its functions, even were its proper tissue unimplicated in the fluid effusion. I am not aware that this condition has been witnessed in patients labouring under the peculiar form of disease at present in question, but it has been chiefly seen under precisely analogous circumstances, namely, in anæmic and chlorotic females, the subjects of impaired vision. It is, therefore, not unreasonable to assume that women exhausted and anæmiated by prolonged or excessive lactation, may suffer in a similar manner; it is well known that they are especially liable to œdematous swelling in various parts of the body, where its presence is visible, as in the ankles, the eyelids, or even in the sub-conjunctival cellular tissue; analogy, therefore, supported by the practical results of treatment, warrants us, in the mean time, in assuming that fluid and non-inflammatory effusion may equally occur between the choroid and the retina, or even interstitially into the texture of the latter tissue itself. Pending further investigation, however, the question must be regarded as still *sub judice*.

Fortunately no such uncertainty exists as to treatment. The exciting cause of the disease is manifest, and this being removed, its effects will, in the great majority of instances, yield to very simple remedies.

In all but the slightest cases the child should be immediately weaned, or, at the utmost, should not be put to the breast more than twice in the twenty-four hours; and this concession can be made with safety to those patients only whose resolution can be depended on. After many trials I find that in hospital practice "there is no medium between excess and total abstinence," as the cries of the infant when first deprived of its accustomed nutriment, and the dread of rapidly recurring pregnancy, are temptations which few among the more uneducated classes can resist until structural changes have taken place which are too frequently irremediable. In all cases, therefore, where the dimness of vision is permanent, the infant should be immediately weaned; and even in slighter cases this measure may be recommended.

The exhausted and anæmic condition of the patient naturally indicates the employment of a stimulating plan of treatment, and the administration of iron in one or other of its various preparations. The details will occur to every one who has had any experience in the management of the diseases of exhaustion, in whatever form. I may briefly mention the method which I have found most successful in the cases which have come under my care.

As a rule I have found ammonia the most generally useful of stimulating medicines, and this may be given either along with iron, as with the ammonio-citrate, or it may be given with a vegetable tonic some time before the meals, the iron being taken while digestion is in progress. The sulphate of iron, with or without quinine, and the muriated tincture, alone or combined with tincture of hyoscyamus, I have also found to be very efficacious remedies; but I do not believe that any importance is to be attached to particular combinations or formulæ; if the tonic principle of treatment be effectually carried out, the results will be satisfactory whatever variations may occur in the details of individual practice. Thus, for instance, I have met with several cases in which iron, in whatever form, could not be borne, and in which the patients recovered completely, though perhaps more slowly under the use of vegetable tonics with ammonia or the mineral acids.

It is almost superfluous to observe that, in connexion with the medicinal measures, the diet of the patient should be liberal and nourishing; and I have never seen any bad results from the moderate use of malt liquors, by those who have been accustomed to take them daily, while in health. Further, leucorrhœa, which is a very frequent accompaniment of this form of impaired vision, and which contributes much to maintain and increase the general debility, should be arrested as rapidly as possible by appropriate remedies. In the form in which it generally occurs, simple astringent injections will, in most instances, be sufficient.

The plan of treatment thus suggested will be found to be rapidly successful in the majority of cases in which there are not any objective symptoms, such as discoloration of the iris, &c. But where such symptoms are present, or, in their absence, where no improvement is evident after a few days' trial of this method, it will be necessary to give mercury. Too much caution, however, cannot be observed in using this powerful remedy; as the debilitated condition of the patient, and the impoverished state of the blood, seem to render the system peculiarly susceptible to its poisonous and depressing effects; and if such are allowed to take place, much injury will be the result. The safest plan is to select the mercurial which is considered as mildest in its effects, and to give it in frequent and very small doses, carefully watching the condition of the gums, and suspending or diminishing the dose as soon as they present the appearance characteristic of its constitutional action. Beyond the faintest indication of

such action, I do not believe it is desirable or even safe to go; ulceration of the gums, hyperæmia of the salivary glands, or profuse salivation, cannot be expected to work out any good result in patients already deficient in red blood. And bearing in mind this deficiency, the administration of mercury should not be allowed to interfere with the vigorous prosecution of the tonic plan already commenced, and especially with the use of iron, in every instance in which it can be borne.

I have never applied leeches or blisters in such cases, and have never had cause to regret the omission, as the patients have recovered perfectly without them, and their pallid appearance has always appeared to indicate the necessity for the increase, not for the diminution of the quantity of blood in the system. Nor can local applications, in the form of lotions, be expected to be of advantage in a disease of purely constitutional origin, except in those cases where there is evident congestion of the conjunctiva, when some weak astringent collyrium may be used, or in those in which the iris is implicated, in which belladonna will be of service in preventing new adhesions to the capsule of the lens, and in relieving pain, if such be present.—*Medical Times and Gaz., July* 7, 1855, *p.* 6.

120.—OPERATION WITH THE GALVANO-CAUSTIC IN URETHRO-VAGINAL FISTULA.

By James Paget, Esq., Surgeon to St. Bartholomew's Hospital.

[This is a case of no little interest as shewing the beautiful application of electricity in surgery. The woman appeared about thirty years of age, was healthy, had never been married, but was the subject of an old-standing troublesome fistula between the vagina and urethra. Several modes of cure had been tried at various hospitals with doubtful success: accordingly, as the only resource left, on May 18th Mr. Paget proceeded to try the galvanic cautery.]

We lately spoke of the useful application of the actual cautery in hemorrhage after lithotomy, and in chronic synovitis. Every one, however, must have observed the clumsiness and hurry with which the red-hot irons are taken out of a smoking brazier, and the horror they create in the patient's mind. The galvano-caustic, on the other hand, requires no fire, no smoke, &c.; the essential part of the apparatus, not unlike a glazier's diamond, or ordinary caustic-case, with two wires run through it, may be carried in a pocket-case. When in action, it applies a little coil of platinum, twisted round a bead of glass or porcelain, about the size of a small pea, and of a white heat, to any part or for any length of time that may be necessary. In the present case the effect was almost like magic, as the incandescent little pea of fire, in an instant, within the speculum vagina, quite lighted up the entire class and bed-curtains, and showed the amount or extent of disease

almost as in a diagram. The plan of action, to which we would revert for a moment, was very simple. An ordinary battery, of half-a-dozen plates, is placed on a chair at the side of the bed; the two wires, one attached, the other may be in the operator's hand, are next arranged; the second wire only requiring to be pushed into a hole at the opposite end of the battery, by the left hand, for the operator to have in his right hand this little ball of fire at a white heat. The woman was next placed on her hands and knees in bed, without any exposure; the speculum was introduced, when the rent or fistulous opening was at once seen, about half an inch in extent. The circle of the battery being now completed, the coil or little bead of platinum, at once shone with almost too much light, reflected as it was from the glass and silver of the speculum. Mr. Paget carefully pencilled the edges of the fistula with this new, and, we think, improved actual cautery, as if it were nitrate of silver scraped to a point. The woman, strange to say, did not feel the least pain—a peculiarity, it is said, of the "white" heat, as contradistinguished from that of a lower or red heat. She did not require chloroform; and after the operation seemed as if nothing had been done to her. We mention these particulars as such an improvement as the galvano-caustic on the old red-irons cannot fail to be of use in burning out the seeds of cancer after removing a cancerous tumour, or in destroying, even to the minutest point or speck, the various morbid growths for which the actual cautery is generally used.

21st.—On visiting this woman to-day, she expressed herself quite a new being, as she can now retain her urine treble the time she did formerly. It is too early, however, to form an opinion, as the mere swelling of the parts would lead to a temporary closing up of the orifice.

23rd.—Marks of improvement are beginning to be quite perceptible in the woman's countenance. She states that she has not been so well for "years and years."

June 4th.—Mr. Paget seems quite satisfied with the good result of the operation. The case itself is one almost unique, as a fistula occurring between the urethra and vagina, in an unmarried woman. The operation will have, probably, to be repeated this week and next, as the chief difficulty in such cases usually occurs in closing up the last point of the fistulous opening. The remedy has been interesting as a galvanic experiment, free from pain, and ultimately effectual after other operative proceedings had failed.—*Lancet, June* 9, 1855, *p.* 584.

121.—*Ergot of Rye replaced by Uva Ursa.*—Mr. Harris, in the 'Virginia Medical Journal,' relates cases in which he has employed a strong decoction of uva ursa in accouchements, where the ergot of rye would ordinarily have been employed, and found its employment followed by vigorous pains, which soon caused the expulsion of both fœtus

and placenta. Mr. Harris prefers this medicine to ergot of rye, inasmuch as it does not cause such strong contractions as the latter, which are so very painful to the mother and dangerous to the child.—*Dublin Hospital Gazette, Feb.* 1, 1855, *p.* 14.

122.—*Ergot of Wheat.*—Dr. JOBERT makes the following statement, as the results of his observations. 1. The medical and obstetrical properties of this ergot are as incontestable as those of the ergot of rye, and its effects are as prompt, as direct, and as great. 2. Its hæmostatic action appears certain. Dr. Jobert has administered it several times, against abundant discharges of blood, and immediately after labour it has almost constantly and fully succeeded. 3. In the dose of from one to two *grammes* (fifteen to thirty grains), according to urgency, in cases of uterine hemorrhage during any period of pregnancy, it has frequently succeeded in lessening, if not in completely arresting the hemorrhage, and this without appearing to produce any stimulant action on the uterus.—*Gaz. des Hop.*—*Asso. Med. Journal, Oct.* 5, 1855, *p.* 915.

123.—*Mechanical Support in Cases of Pendulous Abdomen.*—There are certain cases of enlarged and pendulous abdomen which, when they occur in women, often excite suspicions either of pregnancy or ovarian disease. Their true pathological nature we once heard pointedly indicated by a Borough obstetrician in three words—"fat, fæces, flatus." Every one of experience will recognise the condition we refer to, the subjects of which are usually stout phlegmatic women, liable to flatulence and intestinal torpidity. The state is one often found difficult of relief. We observe that Dr. West, at St. Bartholomew's Hospital, insists strongly upon the benefits derivable from affording to the bowels mechanical support. By the use of an abdominal bandage, applied as tightly as it can well be borne, the symptoms often disappear very quickly, and a patient whom nothing could convince that she was not either pregnant or dropsical, may have at once her hopes dissipated and her fears dispelled. The use of tonics, and mild purgatives (*e. g.* aloes) at the same time is of course advisable. Dr. West often employs frictions with tincture of aloes over the abdomen, with the object of restoring tone to the muscles of the abdominal wall and the intestines. We believe, however, that he considers mechanical support as the most important part of the plan.—*Med. Times & Gazette, July* 21, 1855, *p.* 63.

124.—EFFECTS OF THE BATHS OF KREUZNACH IN DISEASES OF FEMALES.

It has recently become fashionable with English physicians to send ladies affected with uterine and other diseases to the baths of Kreuznach. In many cases, no good can be hoped for; and in many the obstinacy of the disease has been increased by insufficient treatment.

To prevent patients from being sent improperly, Dr. Engelmann, a physician resident at Kreuznach, has communicated to the 'Monthly Journal of Medicine,' for June, 1855, a paper, of which the following are the leading points.

The efficacy of the Kreuznach baths is mainly to be ascribed to the combination of muriate of lime, bromine, and iodine; and hence it will be more especially manifested in those cases in which hypertrophic enlargement or soluble tumours exist, in which cases the grand object is to induce absorption of the tumour by increasing the activity of the absorbent vessels.

Dr. Engelmann examines the uses of these baths in diseases of the mamma, affections of the ovaria, and affections of the uterus.

1. *Diseases of the Mamma.*—It is only non-malignant tumours that can be dispersed under the use of the Kreuznach waters. At the same time, it must be remembered that it is not *every* kind of malignant tumour which is curable by these waters, but only such as come under the following classes:—

(*a*) *Induration of Particular Glands*, arising from inflammation of the breast during lactation or at the time of weaning, or produced by hyperæmia, by mechanical injury, or by cold or anomalous menstruation.

(*b*) *Glandular Hypertrophy* (pancreatic sarcoma of Abernethy, lobular imperfect hypertrophy of Birkett, mammary glandular tumour of Paget). The success of the bathing course depends rather on the previous duration than on the size of the tumour, being most rapid when the tumour is recent. In cases which have come under Dr. Engelmann's observation, after several years, he has perceived no tendency to a fresh growth.

(*c*) *Ectasia or Distension of the Milk-Vessels* is less frequently met with. In all cases which have come under Dr. Engelmann's observation, the tumours had lasted several years; they were always decreased by the use of the baths, and in some cases totally dispersed.

The tumours which cannot be absorbed by the use of the Kreuznach baths, but which otherwise derive benefit from their employment, are (*a*) sarcoma and cystosarcoma of the breast, and simple cysts and cystoids of the same; and (*b*) scirrhous tumours. In these, the size of the tumour is diminished by *absorption of the hypertrophied cellular tissue*, while the disease itself remains unaffected. In cases of sarcomatous and cystic tumours which were operated on after the use of the baths, Dr. Engelmann saw no cases of relapse in those which subsequently came under his notice; and of the scirrhous tumours, those which were removed when small, and had not grown to the skin, nor produced constitutional affection, did not return. But in all cases where the disease had shown none of the well-known characters of malignancy, it always returned after the operation.

When scirrhus has passed into cancer, the use of the Kreuznach waters is injurious. During their use, indeed, there is an apparent amendment; but, when the treatment has terminated, the development of the cancer is more rapid than before, and even sometimes during the treatment, if the baths are more strong.

2. *Affection of the Ovaria.*—The use of the Kreuznach baths is highly pernicious in ovarian cancer, or where there is great exhaustion and hectic fever. In *cysts* of the ovaria, simple *hydrops ovaria*, and the *cystoids*, *cystosarcomatous concretions*, and *alveolar degeneration* of the ovaria, a moderate use of the baths is not directly injurious, but is still unsuitable. Patients with these diseases are repeatedly sent to Kreuznach; but in none of these cases has Dr. Engelmann perceived any benefit (but, sometimes, on the contrary, injury) from the use of the baths, when dropsy has appeared.

The water treatment was attended with benefit only in *solid ovarian tumours* arising from real hypertrophy or effusion of blood, or fibrous tumours without hydræmia, or more constitutional disturbance than could be accounted for by the pressure of the tumour. In carcinoma, the baths will be even injurious; and no good result can be expected in the cases of sarcomatous cysts, with or without bones and hair.

3. *Affections of the Uterus.*—The affections of the uterus which can be efficaciously treated by the Kreuznach waters are *chronic engorgements and indurations of a benignant character*, generally affecting the os uteri, and more rarely the fundus uteri in the entire organ; and *hypertrophy of the uterus*, produced by constant pressure of fibrous tumours. The latter class has comprised the greatest number of uterine affections successfully treated by the Kreuznach waters. The fibrous tumours appeared in various parts of the uterus from within outwards; submucous fibroids were less frequent; and Dr. Engelmann never met with fibrous tumours on the os uteri. *Idiopathic chronic engorgements* of the uterus, from their tendency to congestion, do not admit the use of such strong baths as fibrous tumours. Cases of *polypus* have been mistaken for mucous fibroids, and sent to Kreuznach. The diagnosis, though important, is sometimes difficult. In some cases, during the course of the baths, the polypus has passed through the os uteri. A polypus cannot be absorbed by any means; and the use of the baths is not only a loss of time, but may produce injurious effects on the constitution. There is no doubt, according to Dr. Engelmann, that fibrous tumours can be absorbed, when not entirely of a cartilaginous structure. The diminution sometimes commences in the fibroid itself, when not too solid; and sometimes in the hypertrophied tissue of the uterus. Sometimes the growth of the tumour is merely arrested, and diminution does not begin till after the lapse of some years, on the patient arriving at the climacteric period of life. Tumours of the fundus uteri, which were diminished by the use of the waters, began towards the end of the course to swell, and became softer: in

some patients, where submucous fibroid was presumed to exist, a discharge of serous fluid, accompanied with many flakes, appeared during the course.

In affections of this kind, the addition of mother-lye was in proportion to the development of the disease and the constitution of the patient. In some cases, the baths at last contained, in 400 pints of plain mineral water, 23 pounds of muriate of lime, and more than 11 ounces of chloride of sodium. When the constitution is weakened by accidental complaints, the wished for result must be endeavoured to be attained rather by a prolonged use of the baths than by giving too much strength to them. Exhaustion produced by anæmia, in cases of submucous fibroids, does not necessitate the use of weaker baths. Hemorrhage will only be promoted when the baths are too strong or too warm; if the temperature is above 92 Fahr., either hemorrhage will occur while the patient is in the bath, or menstruation will come on sooner, and be more copious.—*Dublin Hosp. Gazette, June* 15, 1855, *p.* 159.

125.—*A New Hysterotome.*—[Dr. Routh exhibited this to the Medical Society of London.]

It had been manufactured for him by Mr. Maddox, of University street. The simplest idea he could give of its construction was that of a pair of scissors bent upwards between two blades of steel united at both ends. The instrument could be graduated beforehand, as to the extent to which it was to be opened, by graduated screws on either side of the handles. The curve of the instrument was the same as that of Simpson's sound. The length of it, from the joint to its anterior end, was eight inches and a half; the length of the blade eight inches; the length of the handles was four inches and a half, supported by springs, so that the anterior blades were always closed, unless the handles were forcibly compressed. The cutting edge of the blade did not extend to beyond one inch and a half from their tip. There was a peculiarity about these tips, which were made sharp at their anterior aspect, so that in the event of a stricture being so small that the instrument could not penetrate, these blades being made to open to the extent of about a line on each side, the instrument could be made to work its way upwards by gentle pressure in that direction, and by a slight lateral movement from side to side. The instrument was used on the same principle as Simpson's hysterotome. The extent to which the os was to be cut having been first marked out by the screws before alluded to on the handle, the point of the instrument was introduced through the os to the extent required, the handles were then compressed, which caused the two blades at the anterior end to open, and, being kept in that position, the instrument was withdrawn, and in this manner the stricture cut through. This instrument, it would

be seen, was new, in as far as the curve of Simpson's sound was applied to it, thus facilitating its insertion. In some respects it resembled Dupuytren's double bistoury caché. The presence, however, of the curve rendered its application in uterine disease more easy. It might also be used for stricture of the urethra in males, and, indeed, by some very slight modifications, it might be rendered useful for operating in lithotomy.—*Lancet, June* 16, 1855, *p.* 610.

126.—*Tincture of Benzoin in Chapped Nipples.*—M. Bourdel states this is the best application, whatever the extent or duration of the fissure may be. After suckling, it should be freely applied with a pencil. The first application causes a burning pain for a quarter of an hour, which, however, is usually bearable, and future applications give relief instead of pain. It need not be wiped off before the infant sucks.—*Journal de Chimie Médicale.—Med. Times and Gazette, Oct.* 6, 1855, *p.* 351.

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MISCELLANEOUS SUBJECTS.

127.—LIVING STREAMS, OR ILLUSTRATIONS OF THE HISTORY OF THE BLOOD.

By Dr. James Paxton.

[It is by means of the blood that every power which constitutes vitality is originated, completed, and controlled; hence the necessity of maintaining its normal condition. Frequently the first impression of the nature of a disease is derived from the colour of the blood displayed in the integuments, as in anemia, cancer, &c. "Every disease is a local expression of alteration of the blood," therefore a knowledge of the hæmatic system becomes a key to an intimate knowledge of the disease. The blood is a living fluid, consisting of innumerable independent cell beings, existing in an albuminous fluid; some of these are red, others opal white, while a third series are perfectly colourless. All are endued with an executive power, and each cell individually and corporately pursues a certain path to the attainment of a certain end. The development of the blood is four-fold, and comprehends—1. The Chylid; 2. The Hæmatid; 3. The Lymphid; 4. The Liquor-sanguinis.

1. *The Chylid.* It is found in the thoracic duct and receptaculum chyli, floating in the liquor chyli. The chylids vary in size and tint, and are sometimes twice as large as the blood corpuscle. It has been supposed that the change into a blood corpuscle might take place in the receptaculum chyli; but this is of rare occurrence. The cell contains a nucleus, which has been supposed to be the ovum or germ, but it is by the quickening of the chylids that the hæmatids are brought into existence as infusorial animated organisms, a peculiar species of *protozoa*, which possess the faculty of spontaneous vesicular motion, independent of the aid of the heart. In plants, as well as in animals, there is a power distinct from the vis a tergo, by which the blood corpuscles and sap-globules traverse their respective vessels, for the hæmatic movements have been observed in the mammalia to to commence before the development of either heart or vessels. How can we account for this, and also for the progression of the lymph and chyle in their vessels, unless we admit, that these bodies manifest animalcular powers capable of producing change of place. Müller thought that the change in tint might be from red particles regurgitated from the venous trunk into the thoracic duct. However this may be, the chylids are converted by some unknown process into

hæmatids, the quantity and quality of which will depend upon the age, nutrition, and food of the animal. The liquor chyli, entirely unchanged, supplies the waste of the liquor sanguinis.

2. *The Hæmatids.* In man they are biconcave, and occasionally double convex. Diseases, as we shall presently see, greatly alter their figure. They vary in size in the same individual. They are larger in the fœtus than in the adult, one cubic inch contains 126,976 millions of them. These are animals whose simple structure is reduced to a single cell, but possessing all the characteristics of living animalcules.

3. *The Lymphids.* When the chylids are introduced into the vena cava, if the constitution be weak, some remain to all appearance the same, and are called lymphids—pale blood-cells. Their vital powers are of an inferior order. They are colourless vesicles containing several nuclei: they abound in chlorotic and cachectic persons, and constitute a morbid affection, called by Dr. Hughes Bennett, leucocythæmia. Addison says that pus globules, exudation cells, and epithelium originate from them. They are partly appropriated to the repairs of organic waste, and become incorporated with the tissues of the system.

4. *The Liquor Sanguinis.* This cannot be considered vital. It is the fluid in which the hæmatids and lymphids live, move, and exist. Continually replenished by liquor chyli, it furnishes food to living hæmatids in every stage of their existence. It is the blastema and pabulum of organization from whence all organizable material is derived.

The Respiration of the Blood.—If deprived of pure air, the hæmatids fail in their energies. The inspiration of noxious gases, such as carbonic acid gas, &c., have the most serious effect on the hæmatids, in fact they are suddenly asphyxiated. By sleeping in ill-ventilated rooms, the hæmatids become enfeebled, and their executive power diminished; the same in some diseases—the hæmatids become oppressed by the carbon which ought to be extricated; hence coma supervenes, and the patient dies literally "poisoned by his own blood."

The Effects of Poisons on the Blood.—Blood acted on by chloroform, shows the gradual solution of the cell-wall of the hæmatid. The poison from the bite of snakes renders the blood very fluid: it has no tendency to coagulate. The virus mixing with the liquor sanguinis, is quite sufficient to destroy the whole community of hæmatids. All poisons affect the hæmatid vitality, some chemically, some by paralizing, others by asphyxiating them.

In purpura and scorbutus there is an evident disintegration of blood, innumerable hæmatids perish and become effused into the tissues. Under the microscope the globules were changed from a flattened to a spherical form. The liquor sanguinis contained a solution of hæmatin.]

Condition of the Blood in Fever.—The blood in fever is deserving

particular attention. It is more than probable that the cause of fevers is owing to some poison gaining access to the liquor sanguinis. Dr. Alison considers the blood as "not simply changed in its chemical constitution, but in its vital qualities by which that constitution is regulated and maintained." Whatever be the mode in which the morbific cause of idiopathic fever affects the circulation, it is to the direct action of this cause, and not to the diseased action excited locally, that we must ascribe the enfeebled state of the circulation, the peculiar vitiated condition of the secretions, and the derangement of the nervous system. Indeed most fevers must be ascribed to morbid alterations in the structure and composition of the blood. With respect to the state of the liquor sanguinis, in this, as well as in most other diseases, it is liable to great variations, corruptions, and deficiencies. While passing through the lungs, the blood may be exposed to malaria, or suffer from the reception of infectious exanthemata. The liquor sanguinis probably is the vehicle which conveys the poison to the hæmatids.

One of the most frequent symptoms of fever is red-coloured urine—it is the result of a dissolution of vast numbers of hæmatids. In the ulterior stages, hæmatin is deposited beneath the epidermis in violet or livid spots. In yellow fever the hæmatids perish, and escaping into the stomach are exposed to the action of the gastric juice, are decomposed and rejected by vomitings. This is the well-known "black vomit," always indicating a fatal termination. An attack of this disease invariably deprives sanguineous protozoa of life. "The appearance of the blood is always thin and black, and there is hemorrhagic lesion of the mucous and submucous tissues of the alimentary canal." "In serious cases," says Dr. Stevens, "we find in place of blood, a fluid black as ink, obviously unfitted to perform the offices of the circulation." Often death ensues from copious hemorrhagic dejections. There is no author, ancient or modern, except Cullen and the solidists, who has not described fever as consequent on a vitiated or abnormal condition of the blood. As, "blood-globules loosely compacted, serum watery and vapid, so that from this petuitous state, all the secretions are imperfect or insufficiently participant of an animal nature. The bile becomes inert, the animal spirits flat and deficient, the saliva a mere insipid mucus," and so on. The above is quoted from 'Huxham's Essay on Fever.' He concludes this passage by saying—"The slimy lentor of the blood stagnates up to the heart," &c. The signification of these, and more modern, and somewhat less incorrect representations of the doctrines of fever, according to our views, may be explained in the following order. 1. The poison of fever deprives a certain portion of the hæmatids of life. 2. The dead exercise a pernicious effect on the living, by impeding their progress through the vessels. 3. In a short time the former undergo decomposition, act as a deleterious substance, and so long as it remains, greatly incommodes the sanguineous transit. "Pulsus parvus, debilis plu-

rumque frequens; urina parum mutata; sensorii functiones plurimum turbatæ; vires multum imminutæ," describes the result. 4. The liquor sanguinis, now containing the debris of hæmatids, which have probably acquired new chemical characters, is oppressive to the system, and for the nutrition of the organisms useless.

We are sure that in typhus fever some peculiar matter, generally an animal effluvia, has been absorbed, and has made an impression on the blood. In fever arising from malaria the morbid poison has been received through the lungs, and it is supposed to be multiplied in the blood. In a majority of cases of malignant fever, "there is a materies morbi evolved from the blood making the disease contagious." The mode of propagation through the mass of blood is by the results of its decomposition. And so long as the effects of the poison remains in the vascular system, that is any quantity, if even the least quantity of dead matter remains, it interferes with the functions of the living protozoa, by impeding the course and regular operation of these vital powers. Under such circumstances the formation of chylids fail, and the number of hæmatids are speedily diminished. Dr. Watson justly observes —"That all analogy is in favour of the belief, that in fever the primary change is in the blood itself, and through its intervention on the brain and organic functions." As the blood is the source from whence all the organic powers are derived and from which every secretion originates, so these functions are healthy in proportion to the healthy condition of the blood. Have we not in cases of typhoid fever perceived an extraordinary fœtor in the perspiration and other evacuations? and are not the attendants powerfully affected by it? These effects can only be accounted for by morbid evaporation and decomposition of a certain portion of the tissues dissolved in the blood, the component parts of which have entered into combinations injurious to the hæmatic corpuscles. At the commencement of typhus the hæmatic animalcules are partially paralysed—incapable of their work or of communicating energy to the nervous centres. Hence this disease occasions an overpowering lassitude and mental dulness. And we scarcely can doubt that the attack has been detrimental, chiefly, to the hæmatids. Their dissolution in the watery part of the liquor sanguinis is disposed of by the kidneys, and may be detected in the urine, "the colouring matter of which is a decomposition and solution of blood-discs." The disorganized hæmatids are said, by Vogel and Nasse, to leave the body by no other channel than the urinary organs. It therefore follows that we possess in the colour of the urine the ready means of ascertaining, in a given time, whether a large or small quantity of hæmatids are decomposed in the animal economy. In the normal condition two parts to the six of colouring matter is voided, and this expresses the normal loss and reproduction of hæmatids. A chlorotic patient or an invalid who passes little colouring matter in the urine would have little change and reproduction of these bodies. Every one whose urine is high coloured would require a con-

stant supply of hæmatids to recruit the loss. The grounds on which this hypothesis rests, are the following: "In all cases where there is a discharge of red urine, with increase of colouring matter, as in fever and inflammation—there we observe, as a common result, a decrease of the blood-corpuscles and a corresponding anæmia. But where there is noticed diminished production of these corpuscles, with very sparing disintegration, as in cases of debility, there we find little excretion of the colouring matter in the urine."

Effusions in the form of vibices and petechiæ, from the latter feature of the disease, obtained the name of *petechial fever*. The cases in fever hospitals are almost invariably distinguished by this characteristic of hemorrhagic diathesis. When the spots assume a livid, black, or greenish colour, we may predict the near approach of a fatal termination. But signs of exudation are not confined to the surface of the body, the mucous and serous membranes of the internal organs are marked by similar deposits. Now as it cannot be doubted that the remote cause of fever is the reception of a specific poison into the circulation, neither can we doubt of the immediate cause being its pernicious effects on the protozoa of the circulation, when applied through the intervention of the liquor sanguinis to those living organisms. According to the intensity of the poison is the rapidity of their destruction. The dead hæmatids impede the operations of the living community, contaminate the fluid of the vessels and in a great degree suspend every performance of the vital phenomena. Leibig as a chemist thought the perceptible effects of febrile poison was analogous to fermentation. It is an apt comparison, but the pathologist is compelled to take a different view of the question.

There are other modes by which hæmatid structures may suffer and die, thereby producing symptoms resembling those which occur in typhus. On the failure of the potatoe crop in Ireland, in 1847, thousands of the poor were deprived of their accustomed food, and in consequence a disease called *famine fever* was produced. The great mortality of that period, may be pathologically ascribed to a want of organic materials for the production of chyle and chylids, the sources from which hæmatids originate and are supported. The subsequent stages in the progress of this affection is, that owing to insufficient blastema (liquor sanguinis) numbers of hæmatids perish, and they fall into a state of decomposition. As this change takes place, the materies morbi is fully developed and typhus established in the system. The death and putrefactive decomposition of hæmatids constitute the essence of typhoid fever. Some of the new products which are formed in fever pass away in a liquid state by the skin or kidneys, and by natural evacuations, other matters are volatalized and escape in a gaseous form from the body. And we are warranted in assuming that the miasma of infection is contained in the gaseous compounds which are expelled from the lungs of the sick, or are voided from other organs.

The development of the material of contagion in such a state of things is not dissimilar to the generation of malarious gases, which, under certain conditions, arise from the decomposition of organic remains in confined and unhealthy buildings or over-built towns. Persons in general are unconscious of the value of atmospheric purity; without this essential condition, the hæmatids are deficient in vigorous growth, and there is a low standard of health.

Whether the access of the materies morbi acts immediately on the hæmatids on its first reception, or by means of the liquor sanguinis, in which they are immersed, remains undecided. By whatever means the blood suffers from febrile or other poisons, the injuries inflicted on the sanguineous protozoa is the sole cause of every distressing symptom we are called to witness.

In fevers assuming the typhoid type the physical elements of the hæmatids combine with the secretions, and are evident, not only in the urine, but the dark fur on the tongue, and the sordes on the teeth are occasioned by disintegrated hæmatids collected in the mucus of those parts which are coloured by the hæmatin of these bodies.

Abundant manifestations of the pernicious effects on the hæmatids occur in plague, by infiltration of their elements in the cellular tissue in large blue or purple spots (maculæ nigræ of Dr. Russell), on the body and limbs. From the same cause carbuncles commence as vesications, filled with dark fluid indicating a disruption and death of the blood. Hence Hecker is correct in maintaining that the plague is owing to a decomposition of the blood. Almost every one attacked with this species of fever becomes "a mass of putrefaction covered by vibices and gangrene." When this disease appeared in Germany and the northern kingdoms, in the middle ages, it was called the *black death*.

The Effects of Cholera on the Blood.—There is a peculiar affection of the blood in malignant cholera, but which the nervous system and the whole vital functions of the body are, in a greater or less degree, deranged or entirely suspended. During an attack of this disease the hæmatic life is so enfeebled that it can no longer appropriate to its use the materials of the liquor sanguinis. Therefore the water, the fibrin, the albumen, and the salts contained in the circulation escape from its current, leaving the hæmatid structures deprived of vitality. My friend Mr. Field, of St. George's hospital, in 1854, found the blood nearly uncoagulated and almost the consistence of soft butter. Under the microscope he observed a large quantity of epithelium, oil globules, and colourless corpuscles, besides crystals of triple phosphate. The ordinary hæmatids had the outline altered, their structures were corrugated or ragged, as if corroded.

The experiments of Drs. Garrod and Parkes in this disease, were numerous, and conducted with much accuracy. An analysis of the blood shows the amount of solid constituents were 256 to 257 in 1000. While in the healthy standard there were 200 in 1000. The drain-

ing away of the watery parts was certainly the main phenomenon. So much of the colourless matters having been expelled, leaves solely black tenacious blood totally unsuited for transmission through the pulmonary vessels. In many of the worst cases the cutaneous exudation is greatly increased, a watery fluid being poured out by the whole surface of the skin as well as by the mucous membrane of the intestines. This disintegration by which the fibrin, albumen, salts, and the water were spasmodically excluded, constituted a marked feature of the disease. It was undoubtedly the cause of the coldness of the body. We have considered that the thickness of the blood, owing to a loss of water and salts, is sufficient to account for its arrest in the capillary system. "An essential condition for the normal process of nutrition and the chemical process of respiration on which the temperature of the body is dependent, seems to be a certain portion of water in the blood." Mr. Grainger has described cholera as a disease of the blood. The results also which have been obtained by continental pathologists have been the same, namely, that the first impression is aërial, acting as a poison on the blood. Every one might have observed, at the first glance, this extraordinary condition. Very recently it has been submitted to a closer examination and red irregular oviform bodies were discovered in considerable numbers. It is well known that the "qualitative and quantitative condition of the blood is in an abnormal state." A shrivelling of the hæmatids has been noticed by others. Post-mortem inspections have revealed a morbid structural alteration in their form. Examined by the microscope they were scarcely recognizable as such. Some were granular in their general aspect, others were transformed into free epithelial nuclei. In many, a delicate cell-wall was developed in such a direction round a nucleus as to give a caudate appearance to the cell. A few were irregular in their shape and more resembled the bodies usually figured as tubercle corpuscles. The following particulars are deserving of notice.

a. Granularity or haziness of the hæmatids.

b. Peculiarity of their reaction with acetic acid, in acquiring the appearance of pus globules.

c. Irregularities in their tendency to aggregate into rouloux.

d. Excess of lymphids, chiefly in anæmia patients.

The chemical changes also have met with some attention, but of themselves are insufficient to account for the symptoms in any of the stages. The mere chemical elements of blood vary in their quantities, within certain limits, with our meat, drink, and habits of life. It is probable that we might approach nearer to the solution of a difficult question—the proximate cause of disease, by a more extended research into the structural organisms of the blood. The illustrations just cited, is an advance in the enquiry, if not fully a confirmation of such an opinion. We may be assured that no morbid affection, whether local or constitutional, can exist without a previous derangement of the blood. In restoration likewise to a sanitary standard may be traced the

wonderful powers of the hæmatids in repairing deficiencies and recruiting losses occasioned by the injurious operation of morbid attacks on sanguineous vitality. At present the few examples here selected may serve as a clue to further enquiry.

The Blood in Tuberculosis.—In consumption Ancel describes the hæmatids "deficient in numbers and defective in vital properties." And it is always found, that with a decrease there is a corresponding decrease of strength in the patient. Andral found the blood, in this disease, in no one instance, as reaching the physiological average of health. The appearance of the blood, in consumptive and scrofulous patients is roseate, the colouring matter being extravasated and separated from the hæmatids. The liquor sanguinis and these bodies, in many cases, have assumed the same tint. Spheroidal and lenticular corpuscles are constantly found in these affections. So manifestly are they altered, that their figures are represented as "irregularly circular, or elongated, or notched."

The Blood in Local Inflammation.—At the commencement of inflammation, "the current oscillates in the capillaries, and then ceases to flow. That is—1. The blood flows with a greater rapidity. 2. The vessels become enlarged and the current is slower. 3. The flowing is irregular, that is, it flows backwards and forwards—sometimes stops for a period and then resumes its course. 4. All motion of the blood ceases and the vessels are distended. 5. Lastly, the liquor sanguinis, and sometimes the red corpuscles, exude through the vessels." Such is an accurate account of the progress of inflammation, attended with exudation. According to the present theory it admits of the following explanation. 1. Some injury having been inflicted from within or without, which causes excitement of the hæmatic beings, an effort follows which is communicated to the nerves and vessels. 2. This excitation or exertion, as with all other animated nature, is succeeded by exhaustion of animal power. 3. There is partial interruption or suspension of their usual functions. 4. A number of the hæmatids are deprived of motion. 5. The vessels lose their vital tone and yield to the pressure of accumulated blood. 6. There is exosmose of the liquor sanguinis and sometimes of the hæmatin. These are the stages in the rise and progress of inflammatory action and deposits.

To the preceding might be added the physical alterations of the blood in many other affections, even in mental weakness a similar condition presents itself, indicating the relation between the sanguineous and nervous functions. If the hæmatids are abnormal the brain is liable to receive false impressions. The blood of upwards of 2000 patients in the Chrichton Royal Institution for the Insane, has been submitted to microscopal examination, and the hæmatid deformities or "blood changes" in these cases are deserving the attention of pathologists. Dr. Lindsey has published his investigations, and these changes are fully described by himself.

Illustrations of the theory of hæmatism might be multiplied, but we trust sufficient has been exhibited to lead to the inference, that the blood-cells are organized sensitive beings endowed with the properties which characterize animal life. By means of these the special tissues receive power to elaborate the secretions, and carry out the requirements of the animal economy. It is acknowledged that this outline of hæmatism is very imperfect, yet we trust it will serve as an introduction to further enquiry, and at least to exemplify the nature of the living principle.

Life was supposed to be the "breath," yet this is only one of the manifestations of vitality. The ordinary and more intelligible notion is, "an active state of organic structure," this is another manifestation. But life is one thing and the mode of its exercise is another. The latter has been a subject of as much controversy among physiologists as the former; for wherever life exists the next enquiry is, how and by what means it is exercised? The history of hæmatism must furnish a reply. In all our practical investigations we are enabled to learn that the blood has the sole dominion over every animal organization. The phenomena of nervous sensation, glandular secretion, and muscular motion, may be regarded as various modes by which the hæmatid functions are displayed in their influences and control over each organ of the body. That the blood is the executive of the living animal there is accumulated evidence. 1. By the abstraction of blood producing a corresponding abstraction of vital energy. 2. Tying the artery of a limb limits its power, so far as it cuts off the supply of blood; and a normal vigour is not regained until its usual quantity is restored by collateral channels. 3. Plethora consists in an excess of hæmatids, and consequently an inconvenient crowding of the vessels. 4. The opposite condition is anæmia, denoting a deficiency of hæmatids. 5. Mental or physical causes, which disturb the circulation of the blood, immediately influence the whole vital economy. 6. Those parts which are invested with great sensitiveness, as the lips, the tongue and some of the mucous membranes, are exceedingly vascular and obviously abound with hæmatids. On the contrary, where the structure of parts, as the tendons, the cartilages, and the cornea contain no hæmatids, then are they destitute of vital sensibility. But no sooner are these textures, by disease, rendered vascular, than they become sensitively painful. Life therefore might be expressed by the word hæmatism. It has been the object of this essay to illustrate its manifestations under various circumstances, which occur in the hæmatic sphere of action. Moreover, if the animalcular theory of the blood be true, and if vital energy centres solely in the hæmatids, it is no longer a doubtful question. What is the nature and constitution of the erroneous term *living fluid?* The hæmatic protozoa which inhabit the vessels are the only portion of the blood endowed with the attributes of life.

We close this outline of the natural history of the blood, regarding

it as a column of active instinctive beings in every artery and vein. Continually, in transitu, by a branching and tortuous route, they reach all parts of the system. And all service is derived from these organisms,—strength and weakness may be measured by the number supplied to the muscles and nerves. The hæmatids possess the necessary qualities for the administration of the powers requisite for every portion of the organic apparatus of the animal structure and for the accomplishment of every function.—"*Living Streams*," *p.* 30.

128.—ON DISEASE IN GENERAL, AND ON PATHOLOGY IN PARTICULAR.

By I. Harrinson, Esq., Reading.

(Read before the Reading Pathological Society.)

[During an epidemic of small-pox, scarlatina, and measles, the author was led by a long series of reflections on disease and its causes to support the doctrine of the humoral pathology. The following remarks are to demonstrate its truths, and to shew, also, that there is a greater unity in diseases, their causes, and their treatment, than is generally suspected.]

Small-pox was very prevalent, attacking many after vaccination; measles were also prevalent, and scarlatina less so.

In Mr. F., 45 years of age, vaccinated, it was impossible to distinguish the rash on the body from measles, and the face only shewed pustules. In Mrs. C., her body was covered with a rash like measles; and she had not half a dozen pustules over her whole body. Miss M.'s man servant, 30 years of age, had the same appearances exactly. Mrs. W.'s child, 2 years of age, had been vaccinated; it took well. The sister-in-law, in the same house, had small-pox severely after vaccination. The child had a rash over the whole body, precisely similar to scarlatina in all its signs and symptoms. The father had small-pox, secondary. The mother had pains in her limbs, head, &c., but *no rash*. Mrs. A.'s children had measles, and after nursing them, the mother had scarlatina. Two of Mrs. C.'s children had scarlatina, and then measles immediately after. The others had the measles only. One of Mrs. W.'s children had, after vaccination, chicken-pox very severely. When the rash was fully out, I vaccinated the infant. The vaccination took well; but on the fourteenth day, the child was covered with the eruption of chicken-pox, with six or eight well marked pustules of small-pox. I vaccinated Mrs. C.'s child, 2 years of age. On the tenth day, it was attacked with measles. I re-vaccinated Mrs. A.'s child, 2 years of age; it took well. On the tenth day, it was attacked with scarlatina.

These occurrences must be familiar to all practitioners. I will adduce, however, a few authorities.

Diemerbroeck says, "On the seventh day, contrary to all expectation, the measles come out over the whole body, between the small-pox." He adds, "I do not remember I ever saw this accident above twice or thrice in all my practice. However, by this observation it appears, that although both these diseases, in respect of infection, have somewhat in common, yet in respect of the subject to which that infection adheres, there is something of difference and distinction between them." (Small-Pox, p. 39.)

Dr. F. Churchill, in speaking of the remarkable events of small-pox, says, "But what is *more* remarkable, measles and scarlatina may occur, either along with small-pox, just previously, or immediately after."

Dr. Empis describes "An epidemic of small-pox, which prevailed in Paris during January, 1852, as having been preceded in some cases by an eruption, sometimes resembling measles, sometimes scarlatina. The two eruptions, he believes, are due to the same specific cause." ('London Journal of Medicine,' September 1852.)

When I say scarlatina and measles, I mean eruptions which I could not distinguish from those diseases, either in their access, progress, or decline. I do not deny that there are specific differences, but what I assert is, that they are generally the same.

"With reference to the steps of the progress", says Dr. Jenner, "by which the separation of these three diseases into species was effected, they are the same as those by which typhus fever, typhoid fever, and relapsing fever, have been in recent times separated into species. Nor shall we be surprised at this", he adds, "when we reflect that the circumstances which favour the spontaneous origin, if such be possible, and the circumstances which favour the spread of all are the same."

"The cause of them is the same", says Diemerbroeck, "as the cause of small-pox." (p. 23.)

Three diseases, usually termed the exanthemata, are supposed to have originated in the middle of the sixth century, and to have been introduced into Europe by the Saracens; viz., measles, scarlet fever, and small-pox.

As the measles appeared in the same country, and at the same time, with scarlet fever, it is to be presumed that their respective poisons must have had a similar local origin. "The Arabian who first described these diseases considered them merely as varietes of one and the same species." (Williams on *Morbid Poisons.*)

Let us now adduce a few other diseases, and see whether their manifestations are not equally varied and dissimilar.

First, with regard to syphilis; is there any resemblance between the rubeoloid efflorescence and the ecthymatous pustules; between diminutive acne and the thick-crusted rupia; between cankering ulceration and painful nodosity; between cranial caries and inguinal bubo? And yet all are the effects of the poison, "which, there is every reason to believe", says Mr. Key, "is ever the same."

"Dissimilar phenomena may arise from the same febrific poison", says Dr. Laycock. Epidemic catarrh may have its origin in the pleuro-pneumonia of cattle. Puerperal fever may originate in the same quarter. An unmarried girl, 20 years of age, had, while menstruating, been on close attendance on a cow that had died of milk-fever. She died with all the symptoms of puerperal fever. The practitioner was was in attendance on two parturient cases at the same time; both died of puerperal fever.

We have discussed more than once in this Society the generic identity of puerperal fever, mania, and convulsions.

Most members will recollect Mr. Jeston's cases. A young woman nursed her father with erysipelas. She was seven months advanced in pregnancy. Two of her children had erysipelas; and, lastly, she was seized. Premature labour came on; puerperal fever supervened, and death occurred in seven days. The nurse who attended this woman was immediately after seized with acute rheumatism and pericarditis, and died in seven days.

"There is an identity in the generic cause of all epidemic diseases", says the 'Times' commissioner. "With regard to fever, I believe", says Dr. Graves, "that in this country at least, there is no essential difference between typhus and what is called typhoid fever; the same contagion will produce both forms, and these forms are mutually convertible." "The same exciting cause", says Dr. Stokes, "is capable of producing different kinds of fever in different persons." "Yellow fever has the same origin as intermittent and remittent fever." "Intermittent, remittent, and continued fever, are mere varieties of the same disease. They often run into genuine typhus", says Dr. R. Dundas.

Three men were cleansing out a cesspool. They were all taken out insensible; great constitutional disturbance was induced in all. The first had severe inflammation of the eye; the second had erysipelas of the calves of the leg; the third had pneumonia of the right lung.

As respects gout, I cannot do better than read to you the Protean summary of the eloquent Dr. Begbie:—

"Gout is blood disease, and may disclose itself in every organ of the body, and complicate and involve every disturbance of the system. It may visit every part and every texture, from the crown of the head to the sole of the foot, and molest and vitiate every function appertaining to life. We discover it in the head, where not unfrequently, in the form of intense and continued headache, its first manifestation in the system is perceived; we trace it in fits of giddiness and in transient affections of sight and hearing; and often we are called to acknowledge its presence in apoplectic and paralytic seizures, and its most intimate association with lethargy and coma, in connexion with serous effusion or other cerebral diseases. We discover it in the spinal sheath, or spinal marrow, in the shape of paraplegia; and in every part of the

nervous system in the form of neuralgia, whether under the name of lumbago or sciatica, of hemicrania or toothache, or any of the numerous forms of tic douloureux. We find it in the ear, and we trace it in the throat. We discover it often in the eye, where, under the name of ophthalmia, or iritis, or sclerotitis, it lights up intense and alarming inflammation, which not unfrequently terminates in the destruction of vision. It plays a part, a most important part, in many of the most formidable affections of the chest. We detect it, in many instances, in pneumonia, and particularly in pleurisy, and still oftener in bronchitis, and it is the source of many cases of hydrothorax. Gout is the cause of great embarrassment to the heart and bloodvessels, and perhaps, more than any other agent, lays the foundation of irreparable mischief in those vital parts. It is the immediate cause of some acute attacks of endocarditis and pericarditis, and the proximate cause of numerous chronic affections of the heart and arteries. Gout has frequently its seat in the organs of digestion, complicating their functional derangement, hurrying on their structural diseases, and terminating their organic lesions; witness its frequent connexion with disorders of the liver, and its influence on their progress to visceral obstruction and incurable disease. It is intimately connected with the disorders of the urinary organs; is frequently the origin of granular degeneration of the kidneys; of puriform discharge from the urethra in the form of genuine gonorrhœa, and the well known source of stone in the bladder. Gout lurks in many derangements of the uterus, and discovers itself in some of organic diseases. It is the fountain of many hemorrhages and many fluxes. It is the origin and essence of many cutaneous eruptions, and in the joints the fruitful source of crippling lameness and disgusting deformity. Everywhere its ravages are discernible by those who have studied its course,—a course, however, which is too often run unperceived and unsuspected." ('Edinburgh Medical and Surgical Journal', January 1854.)

Nearly the same may be said of rheumatism. Then we have the connexion of rheumatism with chorea, and erythema nodosum, and the curious sequence of jaundice and urticaria.

General Effects of Morbific Agents: Inflammation, &c.—Let us now very briefly trace the effects of morbific agents on the human frame; and, first of all, let us discuss that effect usually termed inflammation.

Inflammation, I take it, consists, in its earlier stage, in a disproportion between the bloodvessels and their contents. This disproportion may be absolute or relative.

Absolute.—1. From contracted vessels, from their fatty state, as in gangrena senilis; the globule being natural. 2. From enlarged glomules, from foreign bodies; in impoverished blood; the vessels being natural.

Relative.—Poisoned blood producing irritation, contraction of the vessels, and consequent disproportion; the fertile source of most diseases.

Stagnation of blood is induced by either state.

"The quantity of blood in the vessels of an inflamed part is not the primary fact in the phenomena of inflammation; the determination is induced by impeded flow, from changes in the *quality* of the blood", says Dr. Geo. Johnson. Two methods of treatment are thus clearly indicated. 1. To push on the tardy current; the stimulant plan. 2. The soothing plan; to allay the tumult; to moderate the quantity of blood going to the part; to facilitate that which does go, and to encourage supplementary circulation. A third leading indication of treatment is to cut off the source, or diminish the supply of the poisoned blood, and to expel that already there from the system.

I have nothing to do in this place with the subsequent phenomena of inflammation, the paralysis of the vessels, their consequent dilatation, nor with exudation. I shall have something to say about traumatic inflammation in due time.

Inflammation, then, is caused by the determination to or stagnation in a part of blood more or less vitiated, and consequently unfit for normal nutrition. "Rubor, tremor, dolor, &c., the consequences of a cause in operation elsewhere", says Mr. Gallwey.

We are not yet in a position fully to interpret elective determination. "Each morbid condition of the blood", says Mr. Paget, "is prone both to produce an inflammation in a certain part or tissue, and to give that inflammation a certain form or character."

This determination to a part is an effort of nature to expel certain matters which are disturbing her in her ordinary operations; in short, inflammation, we conclude, is nothing more than an eliminatory process. "I am strongly disposed to view the local complications arising in the course of intermittents and remittents as topical eliminations of the poison, rather than as sthenic determinations of blood to such parts", says Mr. Gallwey.

Admitting these principles to be correct, and advancing in the same path, we are led to the conclusion that local disease is but the expression of a general condition, that there is no such thing (exclusively, of course, of traumatic causes) as primary local disease.

Let us now see what others say on this subject.

"We believe", says the Dublin reviewer, "that the erroneous idea of a local morbid entity, as distinguished from that comprehensive view of the human economy, which considers pathology, wherever manifested, as more or less of a general affection, must give way." "The further we advance in our knowledge of pathology", says Dr. Todd, "the more must we give up ideas of idiopathic inflammation, and the more constantly do we find inflammatory affections to be due to some defect in the excretory functions, or to the introduction of some morbific material."

"How many of these diseases", says Dr. Stokes, "supposed to be idiopathic, are really secondary to an unrecognized morbid state of the entire system."

"It is of the utmost importance", says Dr. Copland, "to look upon diseases not merely as local manifestations, but as the associated exhibitions of a morbid condition diffused throughout the system."

What does the latest and greatest authority say?

"I must confess", says Sir B. Brodie, "that in proportion as I have acquired a more extended experience in my profession, I have found more and more reason to believe that local diseases, in the strict sense of the term, are extremely rare."

Local causes may operate so as to render one organ more liable to disease than another; but everything tends to prove that, in the great majority of cases, there is a morbid condition, either of the circulating fluid or of the nervous system, antecedent to the manifestation of disease in any particular structure. "Moreover, even in those cases in which a disease may be distinctly traced to some kind of mechanical injury, the character which it assumes depends as much on the state of the general health as on the injury itself."

We can now understand why bruised parts, injured structures, new tissues, &c., should be so liable to become affected with disorder or disease. For example, the opening out of old wounds in scurvy; the deposit of tubercle in false membranes; the liability to a recurrence of inflammation in the same organ; the inflammation of inflammatory deposits; the pains in parts injured many years before, during the prevalence of an east wind, or premonitory to an attack of acute disease, as of gout. An old sportsman, just previously to an outburst of gout, declared to me that he felt pains in every part that had been injured during his life time; that they brought vividly to his recollection every tumble that he ever had had, and they were not a few.

Chemists and physiologists have complained of the want of correspondence in the analyses of the blood. If we look at the infinity of the causes changing its character and vitiating its constitution, our surprise should be great if two analyses could be alike. If we bear in mind the revolutions of the blood impelled by age, sex, food, exercise, occupation, nutrition, and excretion, we must recognize it in a state of unceasing change. Is it to be wondered at, then, that the functions of the body should become distracted in their opposing advocacy, and be the fruitful source of all intrinsic disease! "The whole tendency of modern pathological research", says Dr. Carpenter, "has been to show that the human frame, if endowed with an ordinary amount of inherent vigour, is no otherwise incident to disease than as it is in various ways subjected to the agency of causes which produce a departure from the normal play of its functions."

"Pathological actions", says Dr. Wright, "are nothing more than physiological ones out of order."

Let us now just run through the list of diseases, and see how they conform to such an allocation. We will first take the inflammatory diseases, and then the nervous. Beginning with the head, we may have inflammation of the membranes of the brain; but it is tubercular, nephritic, bilious, syphilitic, or epidemic.

"Meningitis is rarely if ever a primary disease." (Dr. Druitt.) "Idiopathic inflammation of the membranes, at least, is almost peculiar to the tubercular diathesis." (Dr. Chambers.) "A cerebro-spinal arachnitis was epidemic among the French troops in 1837-41; it seemed to depend upon a contaminated state of the blood, and bore a great analogy to affections of the typhoid kind." "Epidemics occasionally arise with a decided bias to cerebral inflammation." (Dr. Sandwich.) "Inflammation of the brain is, in adult subjects, a rare disease." (Dr. Todd.) "The cases commonly called brain fever, phrenitis, are nothing more than examples of some form of delirium."

It is admitted that the pineal gland and choroid plexuses are safety-valves for the separation of noxious matters.

What are the inflammations of the eye—that microcosm of the human body—but those of a typhoid, arthritic, cachectic, gonorrhœal, syphilitic, rheumatic, and scrofulous character?

Inflammation of the throat is rheumatic, syphilitic, or epidemic. "Croup has shown itself capable of transmission by infection." (Dr. Huss on *Diseases of Sweden.*)

Where are the inflammations of the chest (including the pleura, tubes, lungs, and heart) unconnected with a general cause? Look at that epizootic, the pleuropneumonia of cattle; and at the tubercular, renal, rheumatic, typhoid, pyæmic, and bilious origin of most pectoral inflammations. The specimen of the most acute pleuropneumonia ever presented to this Society, and designated by it a regular phlegmon, arose from pyæmia in a case of otitis.

"There was an epidemic of pericarditis in Kilkenny in the winter of 1848-49." (Dr. Lalor.) "The irritating agent in common catarrh is most probably some atmospheric poison." (Dr. Todd.) "Is bronchitis ever a healthy inflammation?" (Mr. Gallwey.)

The abdominal organs, the liver, intestines, kidneys, bladder, are confessedly more subject to the operation of general causes than any other, and I will not weary you by particulars. "Acute peritonitis is so rare, as in all cases to suspect perforation; and chronic peritonitis is always tubercular", says Louis.

I have nothing to say here of the puerperal and surgical conditions and relations of the peritoneum.

The limbs generally are affected by rheumatism, &c., and the skin by the exanthemata, and by a variety of eruptions, which, by general consent, are admitted to be blood diseases.

Nervous Diseases.—We are greatly at fault, I hesitate not to say, in nervous affections. We are too much taken up with the nervous influence, whatever that may be, and forget that the nerves are capable of conveying other matters, more material than their own proper fluid, and that the *vis nervosa* is acted on diversely by an infinity of causes.

It will be admitted with Prochaska, that the nervous system materially influences secretion and nutrition. Therefore, if it be unduly acted on, the secretions, &c., may be vitiated and depraved.

Again, if it be granted that the nerves in any—say inflamed—part are affected with the other tissues composing that part, it follows that they must be influenced more or less by the blood; and, of course, whether that blood be in a more or less morbid condition; and that the nervous system will have its elective affections, in common with the rest of the systems of which the human body is composed.

Each portion of the brain is probably "devoted its province" as regards its influence for certain results: thus alcohol acts on the cerebellum; belladonna on one portion of the brain; opium on another.

Take the ordinary expression of the nervous system—that of pain. "Pain is the sentinel of health. Pain is the prayer uttered by the nerve for healthy blood." (Bonhiere.) "Clinical experience", says Dr. Gull, "almost daily affords instances of not only increased sensibility from a centripetal excitation of sensitive nerves, but of alteration in the circulation and nutrition of the part following upon it." "Did our means of investigating the nerves", says Dr. Graves, "equal those we enjoy in the examination of the vessels, we should find that in inflamed parts the nervous matter increases in many cases, as rapidly and as considerably in extent as the vascular." "Disease commencing in the nerve centres", says Dr. Lewis, "primarily involves the capillaries; and these being engorged, inflammation and its consequent disorganisations may or may not succeed."

"An hysterical girl was attacked with inability to speak, and was cured both times by mercury to salivation, after all other means had failed. It naturally leads us to suspect", says Dr. Law, "that there may be more of *real pathology* in nervous lesion lying at the root of those so-called nervous disorders than is commonly imagined."

Insanity. "Both reason and science", says our distinguished associate, Dr. Burnett, "favour the idea that insanity is not, and ought not in the first instance, and seldom to the very last, to be regarded as a disease of the brain, but as a *disease existing in the blood*." "Insanity is more closely allied to hysteria, chorea, tetanus, &c., than is generally imagined." (Dr. Davey.) "I feel thoroughly convinced", says Mr. Smith, "that we ought to view the noisy vociferations, restless mobility, and intensely accumulated excitability and exaltation of the insane, simply as an effort of nature to throw of the *materies morbi*." Hence cases *may* and *do* occur in which "convulsions are salutary, and mania itself a healthy crisis."

I need only refer you to the *Lectures* of Dr. Todd for a triumphant demonstration of the humoral origin of the epileptic, renal, hysterical, puerperal, anæmic, traumatic, typhoid, erysipelatoid, rheumatic, gouty, and toxic delirium.

What do we mean by *brow-ague*, except that the supraorbital nerve is affected by some aguish or other poison!

"Serious cerebral and spinal symptoms, caused by spasmodic pressure of certain muscles about the cervical and laryngeal regions, which has been set up by *distant irritations*," called by Marshall Hall "*trachelismus*."

"Disease commencing in the nerves of some particular part or organ, may be gradually propagated to the spine producing all the symptoms which are referrible to an original affection of the nervous centres." (Br. Begbie.)

Hooping-cough is due to the influence of a poison which gets into the system, and produces its local manifestations on the vagus-nerve. In certain cases inflammation of the lung arises; and if so, the *middle lobe* of the right one (for reasons I some years ago insisted on), in the same way as sciatica, is sometimes attended with heat and swelling, according to the principle just enunciated.

Asthma. We have all been taught to consider asthma a nervous disease. Of course I do not include the organic condition, *emphysema.*

In addition to various matters irritating the vagus-nerve, including those interesting cases of difficult breathing, probably urinary, brought before the Society, I may name the condition of the system in *dysmenorrhœa.*

Mrs. C. has always a bad cold and sneezing after each imperfect period, and pains in the limbs.

Miss F. has asthma after or at each imperfect period. I attended her with one attack of the greatest difficulty. She was speedily relieved by a diuretic mixture.

Palpitation. Let us beware how we call palpitation a nervous disorder. Take the following not uncommon case. We are called to a patient, probably a female, who reports that she has frequent fits of bad and increasingly severe palpitation. We examine the heart, and find nothing the matter—all is quiet; and then perhaps *we call her nervous.* The fits of palpitation nevertheless continue. From considerations which I need not stop to name, but probably that she had been confined two or three months before, had had œdematous limbs, perhaps convulsions, &c., &c., we are led to suspect something the matter with the urine. We test, and find it *albuminous.* The problem is solved. The capillaries are obstructed by the thickened blood; the heart labours to overcome the difficulty; and hence the palpitation: in like manner as the capillaries are obstructed, and the left ventricle exposed to rupture, under the influence of sudden grief or terror.

A good illustration of this affection occurred in this (the Royal Berkshire) hospital some months ago. It was from the most perfect reliance on the truth of these principles that I presumed to differ from the prognosis given by the medical authorities. I ventured to assure the patient that there was no disease of the heart; that she should be thankful she had a heart capable of grappling with the difficulty under which it temporarily laboured; and that, as the urine acquired its normal composition, the heart would return to its natural action. The event proved the accuracy of this opinion.

Chorea is a blood-disease. Dr. Elliotson saw an instance which arose from a sore which had been running in the thigh, and suddenly healed up.

Tetanus and Hydrophobia are blood diseases. I will merely observe, that a wound has as much to do with the production of tetanus, and the bite of a dog with that of hydrophobia, as a wound has to do with the production of erysipelas, or a scratch with that of phlegmonous inflammation; and no more.

"This change in the blood", says Dr. Todd, speaking of tetanus, "may be caused either by the introduction into it of some new material from without, or by the generation within it of some new matter possessing highly poisonous qualities."

In what do the muddled brain, and spinal spasm, and cervical rigidity, in imperfect catamenial relief, differ from tetanus, *except in degree?*

"The clinical history of trismus nascentium and of laryngismus stridulus shows that these diseases must be precisely similar to tetanus in the essential points of their pathology," says Dr. Todd.

I may appropriately finish this section of my subject by a passing allusion to that class of nervous susceptible individuals who appear to be *all nerve*. They can bear nothing like other people; everything is dreadful. Pain is agony, and palpitation a "twinging vellication." In these cases, there is a deficiency somewhere; "the animal spirits", as the fathers in physic well say, "are generated out of order, and sent out of order to the nerves."

Causes of Inflammation.—Having premised that the blood is already in a state of retrograde metamorphosis; that the individual is exposed to one of the ordinary causes of inflammation; and that inflammation of some organ ensues,—let us proceed to analyse the common explanation of its causation and its treatment.

Say the individual is exposed to *cold*, and that inflammation of the lungs follows; and that he is bled, leeched, blistered, nauseated, mercurialised, purged, sweated, and starved; and that he fortunately recovers. What is the usual explanation of all this, if any is ventured on?

Taking Cold is so intimately associated with our notions of inflammation that we cannot think of one without fearing the other. Notwithstanding the hourly use of these more than "household words", I may be permitted just to ask what is meant by "*taking cold*"?

"The equilibrium of healthy nutrition", says Dr. Bird, "is disturbed; the tissues cease to approximate true nutritive materials; the assimilating functions of the stomach and collatitious viscera are deranged; and the eliminating excretory action of the liver, skin, and kidneys, further impaired or suspended, so as to admit of effete and imperfectly oxydised materials reverting into the circulating fluid."

I need scarcely insist on the importance of the skin, when it is remembered that the amount of fluid passing off amounts to more than two pounds in twenty-four hours—as much as from the kidneys in the same period, and nearly twice as much as from the lungs. An animal painted over with impermeable varnish quickly dies.

The first effect of the impression of cold then is, that the skin is thrown into a state of disorder.

I here may remark that *heat* gives *cold* equally readily with cold and moisture. A very intelligent lady observed to me, "the only thing that gives me cold is a *hot sun*." Whether we admit this as our theory or not, we allow it in our practice: all our remedies for "catching cold", from a hot bath to a treacle-posset, have the same end in view, viz., to act on the skin. These remedies are multifarious, and include taking something warm; putting the feet in hot water; going to bed, and sleeping under nine blankets: lying in bed; keeping in the warm; working it off by strong exercise, as a long walk, a good dance; by getting jolly drunk, &c.; in addition to a sesquipedalian list of medicated potions.

Well, then, having been exposed to cold, and these remedies not succeeding, or not having been employed, the common observation is, "it flies to his lungs"; and the sufferer gets inflammation there.

What do we literally mean by inflammation in general, and inflammation of the lungs in particular? Why, that there is a *fire* there; and that the indication is apodictic—*to put it out* as soon as we can. All our remedies, from bleeding to starving, are directed to this end, because they are "good for inflammation", regardless, or nearly so, of causes and conditions. I beg very respectfully to challenge every item of such an exposition.

What do we effect by bleeding in inflammation of the lungs? Admitting that there is some morbid matter in the blood, by bleeding we lessen its quantity: remembering that the whole of the blood passes through the lungs at least twenty times in an hour, by bleeding we lessen their labour: recollecting that the law of inflammation is to spread, by bleeding we diminish or arrest a further deposit in one lung, and prevent its extension to the other: and the system may be so charged with plethora and crassid stuff, that by bleeding we start the organic processes, as we do in cases of poisoning, as of opium. So far is it clearly indicated. Bleeding has no direct influence, however, on the inflammation already existing; it and all other remedies only lessen, divert, direct the morbid stream; and nature does the rest.

Bleeding, leeches, starving, blisters, lessen and divert; mercury, emetics, sudorifics, purgatives, direct and stimulate the organic processes to augmented action, and thus to remove any foreign matter, wherever it may be, and which is abhorrent to nature.

There is no remedy which has so universal an application, and very justly so, in inflammation, as mercury. "The use of mercury in inflammation of the liver", says Dr. Elliotson, "is indisputable": but I have not seen it of any more use in *hepatitis* than any other *itis*. It is not because there is inflammation of the liver that it is to be given, but because *inflammation exists*. How does mercury operate? "The obvious effect of mercurials", says Pereira, "is an increased activity in the secreting and exhaling apparatus." "Not as moderating the

hypersemial process," says Mr. Simon, "but as determining the necrosis and dissolution of the inflammatory products."

Again, *argumentum ex remedio distortum concluditur*: if inflammation were a *morbid entity*, which it is *not* really—I have endeavoured to show how erroneously—considered to be; if mercury be powerful in inflammation—which universal testimony unanimously admits,—then should it be omnipotent in those cases of inflammation where there is nothing but unfettered inflammation to subdue, viz., in traumatic inflammation.

But is it so? "In traumatic inflammation of the eye, mercury is utterly useless," says Mr. Critchett. Mr. Liston raised his voice against the use of mercury in traumatic inflammation. Mr. Hancock treats lungs wounded by fractured ribs, not by bleeding, but with opium. A boy, 5½ years old, was run over by a cart; excruciating pain followed, and intense peritonitis. How was he treated? By bleeding, leeches, blisters, purgatives, mercury? No; by none of these, but by opium: four or five glasses of port wine a day, and plenty of nourishment. He recovered. "The great point", said Mr. Stanley, who treated him, "is to support the system under the intense irritation excited by the visceral inflammation."

Let us return now to the treatment of inflammation. Obviously the treatment of bleeding, &c., is only applicable to those cases where the loss can be sustained without damaging the patient's constitution, or jeopardising his existence. Surely it would be madness to take it away from those who had too little already. How often, nevertheless, does the following lamentation grate on the ear. A frail creature is seized with inflammation, say of the lungs, and dies. "Poor thing!" it is exclaimed, "she was *so weak*, they" (meaning the doctors) "*could* not bleed her; only a few leeches and a blister were applied; she could not *bear* the remedies indispensable for its reduction, and essential for its cure; and she sank in three days."

How much longer will rheumatism be treated as inflammation? A blooming girl, aged 18, had suffered from rheumatism and consequent heart affection in her childhood, and was rescued from impending mischief, by steel, quinine, and good diet. In the autumn of 1854, she was again attacked with acute rheumatism. The treatment was leeches, blisters, purgatives, and starvation. Notwithstanding, however, the disease advanced with unmitigated severity. A few weeks before her death, she was attacked with a *strong inflammation* of the heart. Leeches were renewed; blisters reapplied; purgatives repeated; starvation enforced with dogged pertinacity; so that, at the end of three months, every bone in her skin could be counted, and death was welcomed as a relief to her sufferings.

"One of the greatest, if not the greatest and most wide-spread error in the practice of medicine, viz., the treatment of all local, acute, and febrile diseases as inflammation," says Dr. Stokes.

"The term inflammation—a word formerly in the mouths of our

professional brethren on all occasions," says Mr. Skey, "is now limited in its application, and should be yet more limited; and I believe, in a yet more advanced state of medical science, will be restricted to an actually rare condition of the system."

"Perhaps no greater improvement has taken place in the treatment of disease than the administration of *wine* in inflammatory diseases." (Erichsen.)

"No man is fit to treat general disease or local inflammation until he has conquered that fear of stimulants which a long course of erroneous teaching has instilled into his mind." (Dublin reviewer.)

I may say of the old treatment of inflammation what a reverend divine says on another subject. "We see it in all its strength, and feel it in all its mischief. We may read what it has done; we may fear what it will do; and see what it does: but we have loved it, and loved it so well, that we will not be cured of our love." (Rev. Mr. Yates.)

Let it not be understood, I pray, that I am railing against the treatment of inflammation by bleeding. In fit cases and subjects, there can be no question but that bleeding is a remedy of great power and admirable efficacy, and as clearly indicated, though not so indiscriminately employed, now as ever.

Accidental Direction of Morbid Tendencies.—A very interesting subject, on which I have the materials for dilating, did time allow, is the accidental direction of morbid tendencies.

An individual is disposed to disorder of a particular (say tubercular character; it may and does often depend on accidental circumstances to what part or organ the mischief is directed. Examples must have occurred to every member of the profession. For instance, a young lady is compelled to fight the battle of life as a governess. The chances are that, if she does not become consumptive, she will become insane. Many a precious child has been lost to the world through the cramming haste and witless ambition of its parents. In an artisan, hard worked, ill fed, and worse lodged, the *lungs* will give way. In a girl, under similar circumstances, particularly if nature should be thwarted in her periodic effort, the *abdomen* will suffer.

This disposition to disease may be congenital, as in the instance just named, when it is called *predisposition;* or it may be acquired, as in the syphilitic condition. We may, however, carry the elements of mischief about us—say epidemic, syphilitic, &c.—for a longer or shorter time, awaiting some accidental and favourable cause to excite its irruption. "The poison of syphilis, being once received into the blood," says Mr. Erasmus Wilson, "remains there for years, and possibly, indeed certainly, for the rest of existence." The organic functions may, however, be so nicely balanced that it has no local manifestation; but let this equilibrium be disturbed by care, want, or any tribulation, any number of years afterwards, and then it may be unmasked, and show itself in all its hideous deformity.

"It probably would not be erroneous to allege" says the 'Lancet', "that the whole of the 2,362,236 persons which are mentioned as constituting the population of London, are every one, man, woman, and child, affected at the present moment by the agencies which produce cholera; and that, in many thousands of them, a few doses of castor oil, or any other active purgative [or any other disturbing causes, it might have added], would be sufficient to excite the disease in its most virulent form."

"In January, 1847," says Dr. Thom, "the 86th regiment returned from Scinde to Bombay, in several steamers. While landing at Bombay, in the afternoon, one boat's load of men, on their way from the steamer to the landing-place, were exposed to a shower which completely drenched them; and in this condition they had to remain till they landed, and marched up to join their comrades in the town barracks. About twelve o'clock that night, five or six cases of cholera were admitted, and several more with diarrhœa.

"On inquiry next day, I found that *every case* was in the men who had been wetted in the act of disembarking. The whole of the cases appeared in this particular party within twenty-four hours after their wetting. For three weeks more, while the regiment occupied the barracks in Bombay, no case even resembling cholera occurred; but, on being moved across to go to Poonah, the same men, after the first day's march, showed in several instances distinct signs of cholera. There must have been something *latent* in the constitution of the men, which, without wetting and marching, might never have become manifest, but died away under the quiet and sanitary influence of the season. It must be borne in memory that, six months before, the regiment had between 400 and 500 cases of cholera, and lost by deaths 240."

The exciting cause may fortunately, but rarely, never occur. On the other hand, circumstances may have preceded rendering the system peculiarly susceptible of the influence of a poison. The poison may enter the system, and be carried off unseen, through fortuitous and extraneous channels; or it may be topically arrested and evacuated, and thus blunted in its virulence; or a trifling injury may excite, in a state ripe for mischief, the most terrible and fatal disease.

"There may be conditions in which the system is ready for the production of organic disease for an *indefinite time*. This may be true, not only with respect to tubercular disease, but also in many other essential affections, including a variety of fevers. And this disposition, this silent state of the malady, may itself pass away, and none may ever know how near the individual was to the invasion of a dangerous or fatal disease." (Dr. Stokes.)

Mr. James, of Exeter, in speaking of the remarkable effects of old ulcers in giving vent to the materials of epidemic poisons, says, "But the most remarkable proof of ulcers affording such relief from noxious matter is probably to be found in the singular exemption from infec-

tion of persons labouring under them during the influence of a pestilential epidemic."

There was an epidemic of erysipelas in University College Hospital. Professor Erichsen observed, that "all the *recent* wounds exposed to the morbific influence became affected; and that the *suppurating* wounds mostly escaped." "If bubo suppurates, no secondary symptoms will follow," says Mr. Hulme. "If the disease," referring to Indian plague, "could find an *outlet* by means of a bubo, it might do well; but, if not, the poison was sure to prove fatal," says Dr. Hirsch.

I have remarked on previous occasions, that one of the most curious occurrence, in practice is, how small an injury, in certain states of the system, will excite the most terrible disorders. When erysipelas prevails (as in hospital), the most trifling operation may lead to a fatal issue in a patient who, had he been untouched, might and would have remained uninjured. Let a brewer's man get the most trivial injury, uncontrollable phlegmonous inflammation may be induced, who, without this injury, might have swilled for years, unhurt, noisethed.

"Within the tropics, and at certain times of the year, the slightest cause will bring on tetanus," says Dr. Jackson. "Tetanus is brought on by the slightest scratch," says Dr. Keenan. Mr. Coulson "tapped a patient; *malignant* disease appeared in the wound, which never healed. No disease was found elsewhere. It is essential to remember," he adds, "that, in unhealthy persons, *very slight* local causes may determine severe and specific disease, according to the constitutional predisposition of the patient. *This is a general law of pathology.*

Non-Recurrent Disease.—A very interesting chapter might be written on these diseases which occur *but once*, as a general rule, in an individual. Without entering on disputed ground, I may name small-pox and the other eruptive diseases, and perhaps syphilis. "A patient who has the first time an indurated chancre *never has a second*," says the Dublin reviewer. This is not easy to account for. I believe we have made no advance in the solution of the question since the time of Avicenna.

Diemerbroeck, in speaking of the causes of small-pox, says, "Avicenna and most of the Arabians refer the material cause to the impurity of the mother's blood, stagnant in the woman with child, and with which the birth was nourished in the womb; which corruption, they write, lies dormant so long in the body, till by virtue of some specific efficient cause, it be provoked to a fermentaccous effervescency; and by that means separates that defilement, adhering from the birth to some minute particles of the body, and, being so separated, pushes it forward, together with the particles of the blood so defiled by it, to the extreme parts of the body, and there raises up wheals. Hence it was that the Arabians believed that all men were subject to the small-pox, in regard that the impurity was again to be separated from the parts. So that if that specific fermentaceous effervescency be strongly and efficiently performed at the first coming of the

small-pox, then that impurity becomes totally evacuated; and then the person to whom that disease happens lives free from that distemper all the rest of his life. But if that effervescency be not violent enough, that impurity happens not to be totally expelled: and so the same person, when the relapses of that deficient ferment again, upon some other cause, may happen to have the same distemper a second and third time, but rarely a fourth."

In other words, we should now say that, in the advent of these diseases, some material was used up, or that they left behind them some incompatible substance. Closely allied to this subject is the prophylaxis of disease; that is, the prevention of one disease by the previous occurrence or presence of another: for example, small-pox by vaccination, phthisis by ague, measles by small-pox, &c.

Antagonistic Influence of Disease.—This term means the cure of one disease by the intercurrence of another. Examples are numerous.

Mr. T's daughter was born healthy, and continued so till six years of age. She then began to be mischievous, talkative, &c. This increased for a year and a half; she was always in mischief, climbing on the house-tops, and sitting on the chimney-pot, &c., and incessantly talking and restless. At the end of a year and a half, she became dull, stupid, inanimate, dirty, filthy, and perfectly insensible to cleanliness and decency, and rebellious to all control and management. She was not able to feed herself. This state continued for another year and a half. During these three years, she had had frequent convulsive fits, and they had increased so much during the last few months as to resemble *one continued fit*. At this time, the other children had scarlatina: in her turn she took it: had it severely; slept almost continuously for four days and nights, and was with difficulty aroused to take about once a day a draught of toast and water. In fact, she was almost put away up stairs, with a hope that death might, and a belief that it would, come and put an end to her misery. After four days, however, she awoke from her torpor, and recovered rapidly from her disease. From this time she never had a single fit. A fortnight afterwards, she was quiet, orderly, sensible to everything around her, decent and clean, teachable, and at once obeyed the commands of her mother. What is curious, she was now able to repeat the hymns she learnt and knew well three years before. All that she now appeared to suffer from was a deficiency of the knowledge of things for a girl of her age; but she was perfectly capable of receiving impressions. She continued to improve, and, twelve months afterwards, the report was "She is now a fine girl, *before* those of the same age in intelligence, and does not differ from them in any particular."

I was attending Mrs. G.'s child with laryngismus stridulus. It had had it three months, and I was making little impression on it by treatment. Scarlatina now came into the house. I watched with intense interest its extension to my patient. It came, and, from the moment of its access, the crowing ceased and never returned.

Dr. Cowan related to me the case of a lady with diabetes, cured by the supervention of gout.

Mr. Wickham informed me that a patient had been admitted into the Winchester Hospital with double cataract and diabetes; and that the cataracts entirely disappeared under the influence of the diabetes; and the sight was entirely restored.

Connected with these cases may be named those extraordinary complementary efforts which nature makes when she only *partially succeeds* in some of her natural processes; for example, the diarrhœa of dysmenorrhœa.

Treatment of Disease.—Pursuing the same course, we now come to the treatment of disease by medicines.

We may begin with this principle, "that the local mischief can never be repaired so long as the blood continues diseased; and if the blood by any means assume its normal constitution and its healthy vitality, the local affection, if no vital organ be too extensively diseased, will get well spontaneously," says the Dublin reviewer.

The first point, then, worthy of all observance is, *to pursue the general indication*, to treat the primary pathological condition.

"It is well known," says the *Lancet*, "that the deaths of thousands of soldiers, registered as owing to fever, rheumatism, pneumonia, and other causes, are in reality to be ascribed, if we ascend to the primary pathological conditions, rather to *scurvy*—a condition upon which the fever, rheumatism, and other immediately fatal diseases, are but *epiphenomena*."

Take anæmia in a girl. Look at the hundred and one complaints of pain in the side, stomach, back; of palpitation; of sleeping little; eating less, and vomiting that; and of being fit for nothing. Give her *steel*, and how surprisingly all her ailments drop off, one by one.

In rheumatic delirium with pericarditis, Dr. Todd observes, "Important and serious as is the affection of the heart, as compared with the delirium, it is just now *of no moment;* for, if the delirium be allowed to continue, there is great danger of the patient dying suddenly from exhaustion."

The same treatment must be pursued in what is called *bilious pneumonia* of the *upper lobes*, with delirium. We may be horrified to find half the lung solid; but we must forget for the time that there is such a thing as inflammation of the lungs, and pursue the general indication.

"I think we may lay it down as a general principle," says Dr. Stokes, "that the more the secondary affections of fever are anatomical, the greater will be the utility of *stimulants*."

"There is no mistake more fatal in fever than the withholding of food and wine," says Dr. Graves.

I saw a young man, aged 22, with bloody urine, cough, pains in his limbs, nodes on his shins, &c. He had had, he said, inflammation of the kidneys, lung, dropsy, &c. He was admitted into the hospital,

under Dr. Cowan, who shrewdly treated him antisyphilitically, with sarsaparilla and hydriodate of potass; and his kidneys, lungs, nodes, &c., got rapidly well.

In certain low conditions of the system, as in some cases of erysipelas, the amount of stimulus required and given would appear fabulous if put on paper. A young lady, aged 16, with influenza and bronchitis, was so weak and fainting that she took a bottle of wine a day, for three days successively, with benefit and with cure.

There is no class of cases that shows the value of treatment more than this. Treatment is everything; it is decision or doubt, victory or a victim. One plan "gives the patient a *chance* of regaining an equilibrium between nutrition and excrementation; the other plunges him down the hopeless descent of regressive metamorphosis." (Dr. Bucknill.)

One atmosphere may prevent the due action of our remedies; another atmosphere may be so curative as to render other remedies unnecessary. "Pleuritic complications immediately disappeared on our leaving Scinde for Bombay," says Mr. Hunter.

The *Harmattan wind* "*is pancratic in disease.* Its first breath", says Dr. Lardner, "completely banished intermittent fevers. Those who had been enfeebled by the practice of excessive bleeding, then prevalent there, soon recovered their strength, Epidemic and remittent fevers, which had a local prevalence, disappeared as if by enchantment. But the most wonderful effect of this atmospheric phenomenon was, that it rendered infection incommunicable, even when applied by artificial means, such as inoculation."

In some cases the indication is obscure. A healthy young man, aged 24, in July 1846, went to Dover, and stayed twelve days. Ague was in the house in which he sojourned. In June 1847, nearly twelve months afterwards, he was attacked with ague of the tertian type. It was readily cured by quinine. Four months after this, I was called to him again with jaundice. He was treated for some days with no effect whatever. I now observed that he was better and worse *every other day*. Remembering his ague, I gave him two grains of quinine in infusion of senna every six hours. The effect was magical. From that day he began to improve, and his cure was rapidly completed.

The primary indication, I need scarcely add, is in many diseases entirely unknown; and the only reasonable plan of managing them is to shorten their *secondary effects*. Thus, we employ stimulants in snake-poisoning, or artificial respiration in an overdose of chloroform, to keep life going till the poison passes off.

In some of these, however, we are encouraged to hope, "Cancer, gout, scrofula, I cannot doubt," says Mr. Simon, "will presently yield to philosophical investigation what they have refused to blundering quackery; and that, within the life-time of many here, there will be a

specific treatment of each diathesis, founded on an exact knowledge of the physiological laws of its manifestation."

Special Indications. As practitioners, in pursuing the general indication, we must not forget any special indication that may be present; as the dilatation of the pupil in iritis, the relief of pain, or the prevention of spasm in tetanus or hydrophobia.

I may be allowed here to digress for a minute to protest against the plan usually followed in the treatment of these dire diseases. Surely it is time another method was followed than that of killing the disease, and frequently the patient, by strong medicines. The direction probably is as has been suggested—terebinthinate and that class of remedies, and the *chemical diuretics* of Dr. Golding Bird. By these and such like we should have a chance, by a charmed catalysis, of involving the peccant matter in their penultimate transformation.

If we analyse our special treatment of disease, we shall find that it amounts to little beyond fulfilling the general indication; and if we proceed still further, we shall discover that this mainly resolves itself into two modes—the stimulant and the antiphlogistic. It comes, therefore, to this, that in all diseases we find the system in one of two states, either above or below par; and we act accordingly. So that a practitioner, armed with mercury, opium, and antimony, in one hand, with steel, quinine, and wine in the other (with a lancet in his pocket), might go forth and treat, and successfully too, most diseases that flesh is heir to. Such a practitioner was the late Mr. Liston. "His medical treatment consisted principally in the exhibition of wine, antimony, and quinine—*three remedies*, and which he employed with consummate skill."

Let it not be inferred from these observations that I wish to ignore the importance of the "*adjumenta* and *lutentia*" in medicine; for in truth, a due attention to these is indispensable to its successful exercise.

What I have no hesitation, however, in asserting is this; that being correct and clear in our general principles, the rest will come with double force; our directions will be definite in their warnings, liberal in their allowances, and absolute in their prohibitions. "A morbid derangement," says Mr. Syme, "if examined with the light of general principles, may be seen correctly, although entirely misunderstood when surveyed through the narrow chink of (blundering) specialism."

If we rigidly examine our daily practice, we shall find that in the vast majority of cases, we treat the patient and not the disease; that our remedies are palliative, not aggressive, and that we pursue much the same system in a great variety of apparently dissimilar affections.

My impression is, that diseases have been made too much of; they have been described as if they were "isolated entities," and treated, instead of the state that gave rise to them.

When the next system of nosology is published, I anticipate that it will be much curtailed in its dimensions, and that it will consist of a

few types of disease, with the local affections, as accidental, not necessary concomitants.

It is probable that the types of disease are not numerous; that there is a greater unity of type, whatever the local manifestation may be, than is dreamt of in our present philosophy. Our daily practice teems with the materials of unsuspected alliances, could we but recognise them.

It is more than probable that small-pox, measles, and scarlatina, and other classes of disease, are merely allotropic of each other, and that, under certain conditions, they may pass and repass into each other.

"What the conditions are which determine these conversions, it is at present," says Faraday, "impossible to say."

Surgical Diseases.—It would probably be considered an omission were I not to say something about surgical diseases.

The same rules apply to the medical treatment of surgical as to the so-called purely medical cases. Surgical diseases recognize also a similar pathology.

Take an example or two.

Aneurism. "There is, in the frames of those persons, a general inflammatory state of the whole arterial system, probably a morbid condition of the blood, and a local inflammatory condition of one artery and set of vessels. The surgeon will see that unless these conditions be removed or mitigated, he can expect beneficial effects neither from compression nor from any other mechanical contrivance."—(Edinburgh Reviewer.)

"The giving of wine on the third day," says Professor Paget," after the operation for hernia, was dictated by the fear that a peritonitis would presently ensue—the localised indication of a general disease. Same in phlebitis," he adds, "some are local, others are declaratory of diseased blood."

I might run through the entire list of surgical diseases in the same fashion, but time forbids; I must hasten to the conclusion.

Conclusion.—My course, it must be confessed, has been somewhat erratic. It is the course, however, through which I have been almost involuntarily carried; the consideration of one subject has led naturally, I trust not violently, to that of another.

It must be manifest that some subjects have been touched lightly upon, others necessarily omitted, and certainly I have not exhausted a tithe of the materials which my notes supply.

All along I have endeavoured to adduce concurrent testimony, and to include my own in the opinions of others. I cannot, therefore, be charged with having presented my subject under any unauthorised phase; much less have I desired "impiously to set up my own small judgment to overturn all that has grown up under the collective influence of men plainly born to be physicians, out of the very [illegible]

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character of human maladies, throughout long ages, and over all the accessible regions of the globe."

My aim has been to shew that there is a greater unity in disease than is imagined, and a much greater simplicity in its treatment than is practised, were we not trammelled by what is called authority, but which means unthinking routine.

It is easier to follow a path which is beaten, than to seek, with difficulty and perhaps danger, a shorter cut, untrodden, for ourselves; at the same time, we may have a strong conviction that there must be another way, and that the old one, though that generally travelled on, is tortuous and circuitous.

We go with the stream, nevertheless, and thus it is we too often make a compromise between our consciences and our conveniences, unwilling to differ and afraid to doubt.

It may be urged that where so much is unknown, we may be well excused for committing ourselves to any theory. "After these discoveries," says Liebig, "the organism offers indeed to the experimentalist enough that is not comprehended, but nothing that is incomprehensible."

"What is perceived," says Humboldt, "is far from exhausting what is perceivable."

Practical men may exclaim, What is the use of any theory about disease? All that we want, is to know how to cure it. It may be replied, "practice, without the aid of scientific theory, is mere groping in the dark." "Every quality of a body," says Liebig, "gives, under certain circumstances, a key to open some closed door; but theory is the master-key with which you may open all doors. Theory is the sum of all practice; it depends on the most exact knowledge of facts and natural laws, and is produced by this knowledge."

"An hypothesis colligates the facts, demonstrates their correlation, traces the analogy of unconnected observation, evolves from the multitude of facts—where no apparent brotherhood consists—a common principle, the detection of which recalls them from confusion to system, from incomprehensibility to science." (Sir W. Hamilton.)

With regard to the humoral pathology, if any one doubts, let him direct his attention to the subject for a short time, and I am convinced his niggard acquiescence will close in full belief.

"Had," says our learned member, Dr. Burnett, "the scientific mind been as steadily attracted to the subject of late years as it was at first, the high probability is, that much more real and practical progress would have been made, both in physiology and pathology, than we can now boast of." I entirely agree with him.

All physiology directs, all pathology corroborates, all chemistry proves, and all practice confirms, that of all the pathologies, the humoral is the correct one. The full current of investigation is proceeding in this direction.

It gives a reasonable explanation of pathological phenomena, and of those methods of treatment which experience has sanctioned; while it simplifies everything, suggests new objects, and confirms old results of inquiry. Finally, it consummates the end and aim of all our labours; it gives facility to those who minister, and help to those who suffer.—*Association Med. Journal, June* 29, 1855, *p.* 605.

129.—ON A CASE OF FEVER COMPLICATED WITH DISEASE OF THE MITRAL VALVE.

By Dr. Lees, Physician to the Meath Hospital.

Although the condition of the heart in fever has had much light thrown on it by the researches of my colleague, Dr. Stokes, yet, as his labours have been directed chiefly to the affections of its muscular structure, and to the diagnosis and treatment of this state, I think it may prove both interesting and important to direct the attention of the profession to diseases of the mitral valve as forming a very serious complication, and necessitating a very cautious prognosis when we meet it associated with fever, as was well exemplified in the following case:—

Mr. H., æt. 33, of active and temperate habits, but of a very bilious temperament, was attacked with the ordinary symptoms of fever last August. I saw him on the fourth day of his illness, he looked very haggard and pale; complained of headache, want of sleep, nausea, flatulence, and constipation; his tongue was coated with a thick fur; pulse very quick, small, and irregular; the impulse of the heart was strong but irregular, and accompanied with a slight roughness, but no murmur; the maculæ appeared on the sixth day of his illness, and he went on very well until the eighth day, when his breathing suddenly became much hurried and laboured, attended with a constant short cough, and palpitation. He was very restless, bled from the nose, and also expectorated some very florid blood. Sir H. Marsh now saw him, and on examining his heart pronounced an unfavourable prognosis, which was unfortunately soon verified, as he rapidly became worse, bathed in profuse perspiration, and died suddenly on the ninth day of his illness.

I examined his body forty-eight hours after death: the weather was very warm, and decomposition had advanced rapidly, particularly in the thorax, which was much discoloured. On opening it the pericardium appeared much distended, and on dividing it the heart protruded, inflated with gas, and giving a tympanitic sound on percussion; on dividing its large vessels a quantity of very fluid blood escaped, and the heart collapsed like a wet cloth, all its muscular substance being quite flaccid. I examined it carefully next day with Sir H. Marsh and Mr. J. Hayden. We found the left ventricle dilated to twice its natural size, but not hypertrophied; the posterior segment of the mitral valve

was rigid and long, so as to allow of regurgitation; the musculi papillares were all greatly hypertrophied, proving that the disease must have been of long standing. There were no traces of any *recent* disease in the heart, lungs, or in any other part of the body.

I confess, I was quite surprised at the rapidly fatal termination of this case; for although physician to the Meath Hospital for many years, during which time I have had constantly many cases of fever under my charge, I have never met with a similar complication in the course of fever. I feel quite satisfied that the disease of the heart had existed for a long time prior to the fever, not only from the morbid appearance, but also from his history: though he never complained of his heart, yet his friends informed me that he never could walk fast nor ascend heights, without suffering much from shortness of breath; and his wife told me that she had for some time observed a great beating of his heart—as she expressed it, a great knocking against the chest. Although he was maculated, yet there were no bad symptoms, nor any appearance of danger till the eighth day, when the disease of the heart became suddenly so aggravated. The small and irregular pulse had led me from the first to examine the heart carefully; and as its action and sounds were quite different from what we observe in a heart weakened from the effects of fever, I felt certain that the alteration of rhythm depended on disease of the mitral valve; but I was not aware of the very serious nature of this complication to the fever, till informed by Sir H. Marsh, who at once recognized it as similar to two cases which he had lately seen in consultation, and both of which proved fatal.—*Dub. Hosp. Gazette, Sep.* 15, 1855, *p.* 245.

130.—CASES OF NEURALGIA, WITH OBSERVATIONS.

By Dr. C. Handfield Jones, F.R.S.

The very great prevalence of aguish and neuralgic affections at the present time inclines me to think that short records of some of the cases which have fallen under my own observation may not be without interest.

Case 1.—M. C——, female, single, servant, aged twenty-five, much engaged in washing, of healthy, rather florid aspect, for a month has had pain of the right hand, affecting all the parts supplied by the median nerve. The pain is easier when the hand is used, is worse when she is still, and at night; no sleep; there is a feeling of numbness, as well as pain; tongue moist, clean; urine clear; bowels open. She never had gout or rheumatism; no members of her family have had gout, but a sister suffers in the same way as herself. A variety of remedies were at first tried, without benefit, such as iodide of potassium in smaller and larger doses; afterwards nervines, with carbonate of iron; then sulphate of quinine, two grains, with sulphate of iron, four grains, and electro-magnetism to the part. Some benefit was

produced by seven minims of liquor arsenicalis, three times a day. There was less pain, but the fingers were very cold, numb, and powerless.

A month had now elapsed, when, on the 7th of March, I began to give her quinine, in five-grain doses, three times a day.

March 10th. Improved; sleeping better; had not near so much pain.

14th. More pain in the hand, extending up the elbow, the last two days. I increased the dose to ten grains.

17th. Hand much better; much more free from pain.

24th. Hand in no pain at all, only numb. I then gave her fifteen grains twice a day, desiring her to take it three times a day, if she did not get well.

April 7th. Hand quite well for a week; has done her work; health better. Discharged.

This case illustrates well the beneficial effect of large doses of quinine.

Case 2.—H. O——, aged fifty-four, female, married; admitted May 25th, 1854. She has symptoms of catarrh, but states, also, that for a long time her hands and fingers have felt numb and sleepy at times, and have been in violent pain at night. After the catarrh had been cured, I gave her quinine, two grains, with four grains of sulphate of iron, in a mixture, three times a day.

Ten days after this, she considered herself well enough to be discharged, having still, however, slight numbing sensations, attended with some stiffness in the fingers of the right hand, affecting the ends mostly, as far up as the second joint.

In this case, small doses of quinine and iron were adequate to effect a nearly complete cure.

Case 3.—C. B——, female, middle aged; not anemic; digestion weak; skin cool; pulse rather weak; bowels torpid; tongue clean; aspect healthy. Complains that when she gets into bed at night the fingers of both hands "go dead," those supplied by the ulnar nerve being first affected. The forearm seems to suffer in the same way. The numbness or pain does not come on until she has been asleep; it awakes her, and continues more or less all night. It is not felt during the day.

March 8th. To have two grains and a half of disulphate of quinine; tincture of muriate of iron, fifteen minims; spirits of chloric ether, fifteen minims; water, one ounce, three times a day.

23rd. Health better, and suffers less with her hands; is not awake now at night, but has cold shivering feelings at this time. Quinine increased to four grains.

April 2nd. Better in herself, and her appetite has improved. The attacks now come on towards morning, awake her about five or six, a.m., and last about half an hour. After the attack has passed off the hands and forearms feel painful, not numb, the little and ring fingers being most affected. The attacks are much more prone to come on if

she lies on either side. Skin quite warm. Looks the picture of health. Has chilly sensations now and then.

9th. Has the attacks still, but not so violent or so often; the pain remains in the hands and arms afterwards; they occur at the same time every morning. The region supplied by the ulnar nerve is now alone affected. She is easily fatigued by exertion.

16th. The patient is very much better, almost well; has only slight remains of the neuralgia in the ulnar nerve region of the right hand; is not disturbed at night; has no cold shivering sensations. The weather changed from cold east to warm west wind. Not having seen the patient since, I conclude that she has recovered, as she was to call again if necessary. The quinine was clearly the principal agent in the cure, and it would no doubt have shortened the duration of the treatment had I given larger doses at first. The periodicity of the attacks is worthy of remark, and the presence of shivering sensations, both of which circumstances indicate an affinity with ague. As the disorder declined, it confined itself more particularly to the ulnar nerve, which was the first to be affected in the paroxysms. This seems to me to indicate rather a peripheral than a centric affection.

Case 4.—M. J——, aged twenty-nine, female, married; tall, healthy-looking, but rather pale. Has been ill one month; suffers from pain in the hand and forearm, not extending above the elbow, severe at night, but only as a numb sensation in the day. All the fingers are affected. She is four months advanced in pregnancy. Is occasionally engaged in washing.

Jan. 23rd. To take five grains of disulphate of quinine three times a day. No improvement having been produced at the end of a week, I doubled the dose. The next week she reported herself better; the fingers were affected, but not the forearm. The next time I saw her, as she was not improving, I gave her, for a week, liquor of chloride of arsenic, five minims three times a day, and after three days conjoined with it saccharized carbonate of iron, one scruple three times a day. This plan gave no promise of benefit.

On Feb. 29th, she was not better; the pulse was very weak; she had no sleep after the pain came on at night. I then gave two grains of disulphate of quinine with four grains of sulphate of iron, in a mixture, three times a day; and a pill of one-third of a grain of acetate of morphia and four grains of extract of henbane, at bed-time.

Feb. 27th. She reported that her fingers were much better; she had slept better and was stronger.

March 6th. Has continued to improve; sleeps well; fingers feel numb: no pain at night; bowels open.

13th. Is well; has no uneasy sensation in her fingers.

In this case, quinine and iron in combination were more effectual than large doses of quinine, or arsenic, or carbonate of iron. The expense of large doses of quinine is so considerable, that with hospital cases I generally try the combination of the sulphates mentioned above,

or a similar one of the citrates, and in a good many cases it has answered very well. The sedative at night I believe to be decidedly useful in cases of this kind.

Case 5.—E. E——, aged fifty-six, female, married; admitted on the 4th of September. She complains of pain in the right forearm, extending from the fingers up to the elbow, commencing in the middle finger, of more burning character at night, not disturbing her rest, but very severe in the morning, when she cannot move her hand to open or close it. The fingers are often burning when she touches or holds anything; at other times numb. Foot somewhat similarly affected. Urine free, clear; pulse of good force; skin warm; is in tolerable health. Ordered, two grains of sulphate of quinine, four grains of sulphate of iron, and an ounce of water, three times a day. Five grains of colocynth pill with blue-pill, every other night.

Sept. 14th. Her fingers have lost the heat, but are numb; she cannot close them; attempting to use a needle makes them numb.

21st. Less numbness, but feels pain up the arm into the axilla if she tries to lay hold of a needle.

28th. Improving. To take three grains of quinine, three times a day.

Oct. 5th. Not so well; all the fingers "go dead." To have four grains of quinine, three times a day.

12th. Somewhat better; suffering from want of sufficient food. Continue quinine, and to take half an ounce of cod-liver oil three times a day.

19th. Better diet; neuralgia not improved; is drowsy. To take ten grains of quinine, three times a day; continue oil.

26th. Not better. Ordered, a scruple of carbonate of iron, three times a day; an ounce of decoction of bark, a scruple of muriate of ammonia, and three grains of carbonate of ammonia, three times a day.

Nov. 2nd. No improvement; she is not able to hold a needle or paper-cutter without having pain in the wrist and up the forearm, in the course of the ulnar nerve; bowels costive; straining at stool causes sensation of pins and needles in the arm. Continue carbonate of iron. Strychnia, one grain; compound extract of colocynth, a drachm: divide in twelve pills: one every night at bed time. Apply a liniment of ammonia and turpentine to the affected part.

9th. She is much better since she was electro-magnetized two days ago; bowels open regularly; she can hold a needle better; it does not slip from her fingers now.

16th. The neuralgia returns occasionally. A second electro-magnetization was rather injurious.

23rd. Fingers a considerable deal better; can use a thimble now, which she has not done for two months; no pain up to the elbow; she cannot close her hand in the morning until she has put it in warm water; when she closes it, she says it snaps in the situation of a small swelling over the flexor tendons, just before they pass under the an-

terior carpal arch; after the snap, the fingers feel numb for one or two minutes: bowels open; health very good. A blister to the swollen part.

30th. The blister appears to have done some good, though she says the hand was dreadfully swollen the next day, and it is still stiff in the morning, so that she cannot close it. The hand was bad yesterday; she could not work with it, but can to day; she is able to do needle-work now; the swelling at the wrist is much diminished; the hand is a considerable deal stronger than last week. Continue iron and pills. An ounce of decoction of bark, and two grains of iodide of potassium, three times a day.

Dec. 11th. Wishes to be discharged, being considerably better.

This case was very similar to the preceding, but in the latter part of its course was associated with some (apparently) rheumatic phenomena I have repeatedly observed that neuralgic disorders have more or less of rheumatic element in their constitution, so that they may require a direct anti-rheumatic treatment at their outset, and afterwards one more suited to pure neuralgia. In the foregoing case, carbonate of iron was the remedy that effected most; quinine was of little avail. So much improvement had taken place before the blister was applied, that I cannot attribute a great deal to its action. I rather look on the effusion in the sheaths of the flexor tendons as an interlude, than as a necessary part of the pathological process. There was not the same nocturnal aggravation in this case as in others. The increase of the pain in using the fingers in holding any small object was remarkable; it probably was occasioned by the increase of pressure on the hyper-æsthetic nerves. I do not think there was any notable anæmia in this last case; I am pretty sure I did not give the iron on that account.

These few cases afford examples of the uncertainty of action of remedies in neuralgia. This uncertainty, I believe, is not attributable, by any means, entirely to want of diagnostic skill. I do not find that we have any indications to point out in what cases large doses of quinine, or quinine and iron, or arsenic, or carbonate of iron, are to be preferred. I do not think this should surprise us; systems that are to all appearance exactly alike, react very differently on the application of what we may call the therapeutic tests. Romberg remarks, that "neuralgia occurs less frequently in the brachial than in the crural plexus." This certainty does not accord with my experience during the last three years; I have much more often met with it in the demesne of the former than of the latter. He has "not been able to discover any fixed type" in this form of neuralgia. In four of the above cases nocturnal exacerbation was very marked. He thinks it is "less frequently isolated than sciatica or tic douloureux, and that it occurs more often in combination with other affections of an allied or different nature." In my cases, the disorder has been remarkably localized, sometimes confined itself to a single nerve. All my cases (above recorded) were of the female sex, which accords with his ob-

servation. He makes no mention of internal remedies, but speaks of the benefit derivable from permanent or flying blisters, and, in his own cases, (where the affection was purely neuralgic,) by the use of the warm baths and douches of Wiesbaden and Aix-la-Chapelle.

Case 6.—Jane M——, aged forty-eight, married; admitted on May 15th. She has been ill three months; has pain in the centre of the right palm, extending up the arm over the shoulder to the back-bone; it is constant, and gets worse; it is increased at night. The hand is numb, except the finger and thumb; there is much burning sensation in it. She gets no sleep at night; tongue clean; pulse weak; has hemorrhoids, which bleed much. Ordered, two grains of quinine; four grains of sulphate of iron; ten minims of tincture of nux vomica, three times a day; one-third of a grain of muriate of morphia, every night. She improved immediately, and was almost well by the middle of June, although the nux vomica had to be omitted on the 1st of June, on account of its making her sick; and she had some relapse of the neuralgic pain at the same time. The morphia did not confine the bowels.

The peculiar features of this case are the exemption of the fingers from the disorder, and the way in which the pain extended itself upwards. The description which was given to me seems to imply that the painful sensation moved upwards like an aura epileptica. If this were so, it is certain (unless it were of centric origin) that the morbid action must have spread gradually from different sets of nervous filaments to others, and not, as it is sometimes said, have been propagated along the nerve in the central direction. This idea, which even Dr. Watson does not reject, seems quite in opposition to the recognised law of "eccentric phenomena," as it is termed by Romberg.—*Lancet, June 9*, 1855, *p.* 577.

131.—ANALYSIS OF THE BLOOD IN RELATION TO THE PRODUCTION OF SUGAR BY THE LIVER.

By Professor Lehmann.

M. Lehmann has made an elaborate series of analyses of the blood of various parts of the economy, with the result of entirely confirming the accuracy of M. Bernard's statements.

1. *Sugar of the Blood.*—In the blood of the vena portæ of dogs fed upon animal food or fasting, no traces of sugar are met with, and in that of dogs fed upon potatoes, or of horses fed with bran, hay, and straw only the merest traces are found. That of the hepatic veins always contains large proportions. In three dogs fed on meat the proportion varied from 0·814 to 0·946 per cent.: in three others, fasting for two days, it varied from 0·764 to 0·814, and in two fed with cooked potatoes it reached 0·981 and 0·854. In two horses it amounted to 0·635 and 0·983 per cent.

2. *Fibrin and Albumen.*—The fibrin of the blood of the vena portæ does not, in horses and dogs, sensibly differ in quantity or quality from that of the fibrin of other veins; but the blood of the hepatic veins, collected without admixture, contains no fibrin, or only small traces, due to the presence of a greater quantity of white globules in the hepatic compared with the portal blood. Very careful comparative analyses also show that a remarkable quantity of albumen disappears in the liver, especially in dogs. It is upon the indubitable fact of such disappearances that M. Lehmann founds his opinion that the sugar found in the liver has its origin in the fibrin.

3. *Fat and Red Globules.*—The blood of the vena portæ, always contains much more fat than that of the hepatic veins. The serum of the portal blood in dogs fed with meat is usually richer in fat than that of horses; but this difference does not prevail in the blood of the hepatic veins. In horses, the globules of the vena portæ are more rich in water, and especially so in iron, but they are poorer in globuline, in extractive, and in salts, than that of the hepatic veins. A considerable quantity of iron, both in dogs and horses, always disappears from the blood while traversing the liver, the difference being greatest in dogs. It results from this that a portion of the hæmatine of the blood disappears in the liver, and probably contributes to the formation of the colouring matter of the bile. adding to the proofs of the complete analogy prevailing between bili-fulvine and hæmatoidine.

4. *Comparison of Venous and Arterial Blood.*—On examining the blood taken from different parts of the same horse, M. Lehmann found that that which quitted the liver by the hepatic veins is incomparably the most sugary. Next in order comes the blood of the vena cava inferior. When the blood has traversed the lungs, and become arterial, sugar is no longer found in it in horses fed on starch and oats. In dogs and rabbits we find it there only when the venous blood has contained more than 0·3 per cent. of sugar. This is the case under all the conditions in which sugar passes away by the urine, as after the punctures made by M. Bernard, after injecting large quantities of sugar into the veins or stomach, and after feeding rabbits plentifully with carrots and beet-root. But, under all circumstances, the hepatic veins, and then the vena cava inferior, continue to exhibit the greatest proportions. The blood of the small veins,—as the cephalic, the digital, the temporal, and the external abdominal in the horse, always contains less globules, and more serum, and consequently more water than arterial blood; but the larger veins, and especially the vena cava inferior, contain blood as much, if not more, concentrated than arterial. All M. Lehmann's experiments seem to show that a remarkable quantity of globules disappears in the general capillary vessels. The greater density of the blood of the vena cava inferior is not due alone to the expulsion of water through the urinary secretion, but chiefly to the affluence of the blood of the hepatic veins. The comparison of all these analyses seems to prove, as established long since by M. Bernard,

that two separate functions are performed by the liver, the formation of sugar and blood globules, and that of sugar. The blood of the smallest veins contains more fibrin than does arterial blood, or that of the vena cava inferior and the jugular. In the vena cava twice as little fibrin has been found as in arterial blood. Arterial blood always contains more mineral salts than venous.—('Gazette Médicale,' 1855, No. 12.)

Whilst on this subject we may mention that M. Figuier, Chemist to the School of Pharmacy, denies ('Gazette Médicale,' Nos. 5, 13, and 15) altogether the accuracy of M. Bernard's statements as to the glucogenetic function of the liver. He details to the Académie des Sciences his chemical experiments, in proof that glucose is found in the blood as one of its normal constituents during digestion, but in less quantities than in the liver, that organ effecting the condensation or accumulation of certain products of the alimentary canal. In explanation of the fact of M. Bernard having found sugar in the liver of animals fed exclusively on meat, he observes that this meat, containing blood, was itself the vehicle of the sugar, which was found in especial abundance during the digestive process.

In regard to M. Lehmann's conclusions, M. Figuier finds them at variance with the results of his own researches, which he declares show that the blood of the vena portæ contains a notable quantity of sugar during the digestion of raw meat, the quantity found in the hepatic veins depending much upon the period of examination. Thus the important fact, he says, is established, that the blood which enters the liver during digestion already contains sugar, so that this organ does not play the important point in its production assigned to it. The liver is also shown to be an organ in which the products of digestion, whether albuminous or glucose, are accumulated and remain for a time, prior to being distributed through the general circulation. If examined only two hours after the repast, the blood of the hepatic veins is found to contain a very insignificant quantity of sugar, although the liver itself be loaded with it; but if examined only four hours after the blood coming from the liver, will be found to contain a notable quantity of glucose. The same observations apply to albumina, these two substances probably contributing to the formation of bile and the secondary order of secretions which take place in the liver. When the intestinal digestion is completed, and the alimentary canal is entirely freed from the saccharine matters furnished by the aliments, the blood, after traversing the system, returns to the liver free of sugar, and while traversing this organ it acquires an additional portion. In animals that have fasted two or three days there is no sign of sugar in the portal blood, but a certain amount is still found in the hepatic veins, having been furnished to them by the liver, which has a reservoir of glucose.

At a subsequent meeting of the Académie, M. Bernard stated, that as the assurance with which these statements are made may impose

on some persons, he deemed it necessary to declare that they were completely incorrect. He has performed his own experiments before *savans* of all countries during the last six years, too frequently to admit of any doubt being held; and their recent repetition enables him to declare most positively, that during the digestion of meat no sugar whatever is found in the portal blood, while a notable quantity always then exists in the hepatic veins. The Académie has referred M. Figuier's papers to a committee, consisting of MM. Dumas, Pelouze, and Rayer.—*Med. Times and Gazette, June 9, 1855, p. 578.*

132.—ON THE ECRASEUR OF M. CHASSAIGNAC.

By David P. Holton, Esq., Paris.

[This is a new surgical instrument, which is just now attracting the attention of the profession in Paris, and seems about to create much interest.]

The *écraseur* is especially adapted to the removal of pediculated tumours, and for sections in which it is important to avoid hemorrhage.

It is so adjusted as to embrace the part to be cut by a loop of chain presenting a plain surface with which the section is made. The two extremities of the chain, entering the tube of the instrument placed in contact with the point where the division is to finish, and successively and at determined intervals drawn by a balanced lever, worked at the opposite extremity of the tube. Every successive diminution of the loop is retained, and thus the operation may be completed within any specified time deemed expedient, having reference to the state of the patient, and the vascularity of hemorrhagic tendency of the parts.

The end proposed to be obtained by the *écraseur* is section without the inconvenience of ligature, or the hazards of hemorrhage.

A work containing plates, and a full description of the several forms of the instruments manufactured by M. Matthieu of Paris, adapted to operations of the exterior of the body, and in sundry cavities, is soon to be published, therefore it will be preferable on this occasion simply to state a few cases of its applications. Let us commence with *hemorrhoidal tumours*. In the case of external hemorrhoids, each separately or several united are, in the first instances, surrounded at the base, as in ordinary cases, by ligature. Over the thread, and in the groove thus formed, and separating the tumour from the healthy part, is placed the loop of chain which is to penetrate by alternate progressions of each half of the loop operated by the balance lever at intervals of fifteen, thirty, or sixty seconds. Internal hemorrhoids are seized by an *érigne*, or are brought to view by other usual modes, and are embraced and removed in the same manner as those already described.

Several of the cases operated on by M. Chassaignac have been of the most vascular kind; yet their removal has not been attended or followed by any loss of blood, or any of the grave accidents which sometimes occur in the treatment by cauterization, ligature, or excision by the common method. Polypi of the rectum have been successfully removed in a similar manner.

One of the most remarkable applications of the *écraseur* is in the operation of fistula in ano, which alone entitles it to be ranked amongst surgical improvements, combining as it does all the advantages of the *apolomose* of the ancients and the section of modern practice.

About three weeks ago, M. Chassaignac removed a testis degenerated into an encephaloid tumour some five inches long, three broad, and two thick, occupying the right portion of the scrotum. A ligature was at first applied in such a manner as to define as near as possible the limits between the healthy tissue and the tumour. The pedicle thus formed was severed by the *écraseur* without the loss of any blood. A considerable portion of healthy tegument was necessarily involved in the operation. This was to be regretted, and an observer might have hesitate to approve of the employment of the *écraseur* in this case. A wound was thus left six inches in length, the edges of which were coapted and retained by suture; but three or four days after, adhesion by first intention having failed, as might have been expected, the sutures were removed, and simple dressings applied, and the wound is now rapidly healing by a process of healthy granulations.

This instrument has been successfully used in excising the neck of the uterus, and in the removal of erectile tumours. It is not my object to enter into a minute description of these cases, nor shall I attempt to criticise what to many would seem an abuse of the *écraseur*, in a case of phymosis, and another of varicocele, now under treatment at the Hospital Lariboisière.

I should not omit to mention a case of great interest presented at to-day's (Oct. 1st) clinique. A man, aged about sixty, of strong constitution and vigorous frame, had a cancroid affection on the right lateral portion of the tongue. The tumour was about two inches long, one broad, and three fourths of an inch thick, projecting forward to near the tip of the tongue, from which it was separated by a narrow fissure, giving the appearance of a double tongue. Most of the patients mentioned have been operated on when under the influence of chloroform; but this man, of strong nerve, used no anæsthetic. The operator, taking with his left hand the entire mass, circumscribed the tumour by a strong ligature, placed in the groove thus formed the loop of the *écraseur*, and commenced the alternate motions of the lever. As the hazards from hemorrhage in operations on the tongue demand special care, M. Chassaignac directed an assistant to make the progressive movement at intervals of one minute each, thus prolonging the operation more than an hour.

The patient, seated in his chair, himself supporting the instrument, presented the appearance of an *Oriental with his pipe*. Occasionally he arose and walked to the window, if not to view the beautiful court, parterre, and pavilions of that model hospital of Paris, at least to breathe the refreshing air as it circulated around the heights of Montmartre. While the excision of the tumour was thus slowly progressing, M. Chassaignac was at liberty to proceed to the operation for fistula in ano, the removal of a polypus from the rectum, and the elimination of hemorrhoidal tumours from three other patients. Verily, thought I, this is a new epoch in operative surgery.—*Lancet, Oct.* 13, 1855, *p.* 352.

133.—SELECTIONS FROM FAVOURITE PRESCRIPTIONS.

By Dr. Horace Green, New York.

[Many of these prescriptions are the contributions of the most distinguished American physicians and surgeons of the present time. They are the result of years of collecting from the most experienced and practical men who have visited the hospitals of New York.]

For obvious reasons, we shall arrange these formulæ under their appropriate heads.

Narcotics and Sedatives.—The narcotic principle in medicine differs from that of the sedative in this, that its primary action is in some degree stimulant, whilst the sedative principle tends directly to depress the vital powers without inducing any previous excitement. The ultimate action of both narcotics and sedatives is to diminish the sensibility of the nervous system, thereby allaying pain and promoting sleep.

Among the direct sedatives *hydrocyanic acid* is one of the most prompt and efficient. Administered in appropriate doses, it tends directly to lower the sensibility of the nervous system, to diminish the frequency of the pulse, and to induce a sensation of quiet and calmness throughout the whole system. Alone, or in conjunction with other remedies, prussic acid constitutes one of our most valuable therapeutic agents.

The following combinations with this remedy have been proved to be of great service in the treatment of disease:

℞. Acidi hydrocyanici, medicinalis, gtt. lx.; morphiæ sulph. gr. iij.; tinct. sanguinariæ, vini ipecacuanhæ, aa f.℥ss.; syr. pruni virginianæ, vel misturæ amygdalæ, f.℥v. M. fiat mistura cujas sumat cochlearium parvum bis terve in die.

We have found the above a most valuable remedy in the treatment of *chronic bronchial disease;* in allaying the *cough* present in *tuberculosis*, and in all *pulmonary catarrhal diseases*, unattended with fever. As the acid is apt to float on the top of the liquid, the phial should be shaken on the administration of each dose.

℞. Acidi hydrocyanici, gtt. xl.; vini antimonii, f.℥ss.; syrupi tolutan. f.℥iss.; mucil. acaciæ, f.℥ij. M. fiat mistura, capiat cochl. parvum ter quaterve die.

This may be used in the same cases as the former, when the cough is troublesome, and is attended with some degree of fever.

As a remedy in the treatment of *hooping-cough*, hydrocyanic acid surpasses in efficiency every other known general remedy. We have employed it for many years in this disease, and can fully substantiate the declaration of Dr. Hamilton Roe, that "Hydrocyanic Acid of Scheele's strength will, if exhibited as soon as the whoop is heard, effect a cure in almost every case of simple hooping-cough." If the disease has been going on for many weeks, its effects are not so immediately felt, but nevertheless it will cure in most instances."

The following formula we are accustomed to employ:

℞. Acidi hydrocyanici, medicinalis, gtt. xxv.; vini ipecacuanhæ, f.℥ij.; syr. tolutan. f. ℥j.; aquæ destillatæ, f.℥iij. Fiat mistura, cujus sumatur cochl. parv. quartâ quâque horâ.

It is important that its use be entered upon as soon as the presence of the characteristic whoop determines the nature of the disease. If the breathing is oppressed, or the symptoms present indicate the existence of bronchial inflammation, the administration of the sedative should be preceded by the exhibition of an emetic, and perhaps by the application of a few leeches to the chest.

If administered too freely, the acid will produce a greatly depressing effect on the vital powers. Should much debility therefore occur during its employment, the remedy should be omitted, and mild tonics, with a more stimulating expectorant, be exhibited for a few days, when the use of the hydrocyanic acid may be renewed.

"The dose of hydrocyanic acid for an infant," says Dr. Roe, "is about three-quarters of a minim of Scheele's strength, gradually increased to a minim, which may be given every fourth hour; for a child of three years of age, about one minim, gradually increased, if necessary, to a minim and a half every fourth hour; for children of ten or twelve years of age, a minim and a half, increased to two minims every fourth hour. It is safer to give this medicine in small doses at very short intervals, than to run any risk of producing too great depression by a large dose. The frequency of its exhibition must depend upon the strength of the patient and the severity of the attack. The dose should be repeated when the effects begin to subside, which in mild cases generally happens in three or four hours; but when much fever is present, its influence is felt but a very short time; under such circumstances, a larger quantity may be given and at shorter intervals, without any apprehension of danger, *so long as the fever lasts.*"

℞. Acidi hydrocyanici, medicinalis, f.℥j.; liquor potassæ, f.℥ss.; infus. calumbæ, f.℥ij.; misturæ amygdal., f.℥iv. Misce. capiat cochl. minim. ter die.

In cases of long-continued chronic bronchitis, the physician occasionally finds this disease complicated, with a peculiar irritable condition of the gastric mucous membrane, manifested by tenderness of the epigastrium, a red tongue, frequent head-ache, and a feverish condition of the system. In such cases where the inflammation has extended to the mucous membrane of the stomach, producing this not uncommon form of *broncho-gastritis* the exhibition of the above combination, with the hydrocyanic acid, the alkali, and the bitter vegetable infusion, will exert a prompt and a decidedly happy influence on this diseased action.

Combined with the extract of belladonna, hydrocyanic acid has also been found very useful in the treatment of *gastralgia* and in "*irritable gastric dyspepsia.*"

The following mixture prepared, and a teaspoonful of the medicine administered three or four times daily in these affections, will, by acting on the nerves of the stomach, greatly diminish their irritability.

℞. Extract. belladonnæ, gr. x.; acidi hydrocyanici, medicinalis, gtt. lx.; tinct. columbæ, syr. simp. aa. f.℥j.; aquæ destillatæ f.℥ij. Misce.

The above combination has likewise been employed with great benefit in the treatment of *spasmodic asthma.*

These, then, are some of the useful combinations of one of our most important therapeutic agents; and we can assure the practical physician that not only in these affections, to which allusions have been made, but in the treatment of many other diseases, he will find these remedies invaluable aids in controlling diseased action.

The *anhydrous*, or pure hydrocyanic acid, which consists of one equiv. of cyanogen, and one equiv. of hydrogen, is of a nature so exceedingly poisonous, that it cannot be employed with safety in medicine. The *medicinal* acid, which is the preparation that should always be directed to be used in our prescriptions, contains only 2-5. per cent. (United States Pharmacopœia) of the pure acid. That of the Apothecaries' Hall, London, contains 3-2. per cent.; whilst the medicinal acid of the French Apothecaries is nearly equal to that of the United States Pharmacopœia—namely, 2-4. per cent. of the pure acid of Gay Lussac.

As the strength of the different medicinal acids cannot be depended on as being always of the same uniform power, it has been proposed that the cyanide of potassium be substituted in medicine for the hydrocyanic acid.

℞. Cyanidi. potassii., gr. xxii.; alcohol. officinalis, f.℥xi. Misce.

This preparation of cyanogen, which possesses the same medicinal qualities, and is of the same strength with the hydrocyanic acid, is greatly preferred by many practitioners as a therapeutic agent, inasmuch as it can be depended on as being always of an uniform strength. It may be used in the same doses and under the same circumstances in which the hydrocyanic acid is administered.

As palliatives in the treatment of all forms of *neuralgia*, the narcotics and sedatives are very generally resorted to by practitioners, especially during the paroxysms of the disease. When appropriately combined, their efficacy in these affections is more prompt and decided than when separately administered.

℞. Extracti hyoscyami, ℥ss. ; morphiæ sulphatis, gr. iij. ; strychniæ, gr. ii. ; capsici pulv., ℥ss. ; zinci sulphatis, gr. xv. M. Fiat massa ; in pilulæ xxx. dividenda ; capiat unam, ter quaterve in die.

In neuralgia, unattended by organic lesions, the above pills, exhibited every sixth or fourth hour, according to circumstances, will be found to be an excellent remedy. They have proved especially serviceable in that form of neuralgia in which the division of the fifth pair of nerves are so frequently involved. Not only in facial neuralgia, but in all cases where the disease has been caused by malaria, this combination may be administered with confidence that the result will be favourable. The valerianate of iron conjoined with the extract of hyoscyamus is an excellent antispasmodic and tonic, and may be employed with great advantage for the treatment of *chorea* and all the *neuralgic affections of anæmic and debilitated females.*

℞. Extracti hyoscyami, ℥ss. ; ferri valerianatis, ℥i. Fiat massa, et in pilulas triginta dividenda ; quarum date unam ter in die.

The valerianate of iron and the valerianate of zinc are two highly valuable remedies, and were the therapeutic powers of these medicines better understood by the profession, they would be much more extensively employed than they now are for the treatment of disease. The valerianate of zinc, Dr. Neligan says, is "is one of the most valuable modern additions to the Materia Medica."

℞. Extracti hyoscyami, ℈iss. ; zinci valerianatis, ℈j. Fiant pilulæ xxx. Capiat unam bis terve in die.

The above pill is a valuable remedy in the treatment of *facial neuralgia*, and, indeed, is equally serviceable in all the nervous and neuralgic affections for which the valerianate of iron has been advised.

℞. Extracti belladonnæ, gr. viij. ; camphori pulv., ℥j. ; quiniæ disulphatis, ℈ij. Misce ; Fiant pilulæ triginti.

These pills are very effective in the treatment of *dysmenorrhœa*. One pill may be exhibited every hour or two hours till the pain ceases. In females of a nervous temperament, when painful menstruation occurs, independent of organic lesions, these pills, administered as above directed, seldom fail of affording relief. In those cases of dysmenorrhœa where a tonic is not particularly indicated, the following are more appropriate, and are equally efficacious.

℞. Extracti belladonnæ, gr. viij. ; ipecacuanhæ pulv., gr. x. ; zinci sulphatis, ℥ss. Misce ; Fiant pilulæ xxx., quarum capia unam quaque hora, donec leniatur dolor.

The following pills are highly recommended by an intelligent and

experienced practitioner in the treatment of *leucorrhœa* occurring in anemic and nervous females :—

℞. Extracti hyoscyami, ʒi. ; argenti nitratis, gr. x. ; cantharidis pulv., gr. xii. ; quiniæ disulphatis, ℈ij. Fiant pilulæ xl. Sumat unam mane et nocte.

The same physician advises the subjoined formula as a combination that may be employed with great advantage as a diuretic and alterative in the treatment of *cellular dropsy*.

℞. Extracti conii, ʒj. ; cantharidis pulv., ℈ij. ; hydrarg submur. ʒss. ; ipecacuanhæ pulv., ℈j. Misce ; Fiat massa ; in pilulæ xl. dividenda. Cujus capiat unam ter quaterve in die.

A combination of the extract of belladonna with quinine has been employed very efficaciously in the treatment of *gastralgia*.

℞. Extracti belladonnæ, ℈ss. ; quiniæ disulphatis, ʒj. M. Fiant pilulæ xxx. Sumat unam ter in die.

In that variety of gastralgia which is not unfrequently occurring in the course of *chronic gastritis*, we have derived the greatest benefit from the employment of the following pills.

℞. Extracti hyoscyami, ʒj. ; argenti nitratis, gr. x. ; bismuthi subnitratis, ʒiss. Fiant pilulæ xl. : quarum sumatur una mane ac nocte.

The nitrate of silver combined with some one of the sedative extracts may be employed advantageously in the treatment of almost all chronic gastric affections. In cases of obstinate, chronic gastritis, or long continued dyspepsia, we have found the following pills more efficacious than any other single remedy. They should be continued for several weeks :

℞. Extracti conii, *vel* lupuli, ʒj. ; argenti nitratis, gr. x. ; capsici pulv., quiniæ disulphatis, aa. ℈ij. Misce ; Fiat massa, in pilulas xl., dividenda. Capiat unam bis terve in die.

There is a troublesome and often an obstinate form of *gastric irritability*, denominated by the French *estomac glaireuse*, in which the patient occasionally ejects by eructation, a tasteless watery fluid, and which is accompanied, often by a severe burning pain in the epigastric region. This variety of the disease is arrested with great certainty by the exhibition of either the preceding, or the following pills :

℞. Extracti lupulinæ, ʒj. ; argenti nitratis, gr. x. ; bismuthi subnitratis, ʒiss. ; quiniæ disulphatis, ℈ij. Fiant pilulæ xl. cujus sumatur unam bis terve in die. ;

In *all forms of chronic disease, attended with acute pain*, as well as in all painful nervous affections, in the treatment of which, for any cause, full doses of opium are contra-indicated, the following combination may be administered with great advantage :

℞. Extracti hyoscyami, gr. xv. ; extracti stramonii, gr. iv. ; extracti humuli, ʒj. ; morph. sulphatis, gr. iss. Misce. Divide in pilulas xxx. ; quarum capiat unam omni semihora, donec leniatur dolor.

Of the therapeutic effects of muriate of ammonia, when internally administered, but little is known, as in this manner it is but rarely employed in this country. With the German physicians it has obtained a high reputation as a good alterative, and a promoter of healthy secretions in chronic diseases of the mucous and serous tissues. It not only promotes the mucous secretions, says Dr. Sunderlin, but the cutaneous exhalations, and improves also nutrition and assimilation. Combined with a sedative and narcotic, we have found it highly valuable, in allaying irritation and in *promoting expectoration, in the early stage of phthisis:*

℞. Ammon. muriatis, ʒss.; opii pulv., gr. x.; digitalis pulv., scillæ pulv., aa. ℈j. Misce. Divide in pilulas triginti. Sumat unam quaque sexta horâ.

Sleeplessness occurring in hypochondria, hysteria, and indeed in all nervous affections, may be overcome with great certainty by the administration of the following pills:

℞. Assafœtidæ, ʒj.; morphiæ sulphatis, gr. iij. M. Fiant pilulæ triginti, quarum exhibe unam vel duæ horâ decubitus.

The above pills,—two to four exhibited daily,—are very efficacious in arresting the dry cough which is occasionally consequent on disordered menstruation in nervous females.

Tonics and Stimulants.—Although these two agents are here arranged together, and are frequently combined in their administration yet they differ essentially in their therapeutic effects. Tonics, although not confined in their action to the muscular fibre, are generally defined to those "medicinal agents which restore relaxed and weakened muscles to their state of healthful tone, which renew their elasticity, contractibility, and tension," and thereby impart strength and vigour to the whole system. *Stimulants*, by increasing the sensibility and irritability of the parts to which they are applied, powerfully augment, through the nervous system, the organic actions. Stimulants exalt the functions of innervation and circulation without imparting permanent, strength to the system. Tonics give tone and strength to the muscular and nervous system at the same time, without increasing, necessarily, the action of the heart. "Tonics give strength, stimulants call it forth."

The tone or energy of the system which is gradually acquired through the administration of tonics, becomes permanent, and is not replaced by a consequent exhaustion or depression. The introduction of stimulants into the living body is quickly followed by increased energy of the vital actions, and is succeeded as rapidly by a state of depression or collapse. Stimulants are not indicated when inflammation is present, but "tonics, by imparting strength to the capillaries, operate beneficially in inflammation, even when the use of the lancet is requisite to keep down the action of the heart." Both tonics and stimulants may produce their effects on the system, by making their impression chiefly on the stomach, or by operating through the medium of the blood, or through the medium of the nerves.

As tonics, strictly speaking, are neither stimulant nor sedative, they may be appropriately, and, often, very usefully combined with either. In many cases, where tonics are indicated, and yet from some cause are not well borne, they may be administered, especially the martial preparations, with much safety, and often with great advantage, by combining them with some of the peculiar sedative medicines. The different forms of iron, whether employed as found in the natural chalybeates, or in the artificial preparations of the chemist, make their primary impression on the digestive organs, augmenting, ultimately, the power of the secretory and excretory systems, and rousing the nutritive faculty in every part of the body.

The following combination of a chalybeate with a stimulant and a sedative has, for many years in our hands, proved a most valuable tonic, particularly when administered during convalescence from disease, and in all *debilitated and anæmic cases.*

℞. Extracti conii, ʒij.; sesquioxydi ferri, ʒiij.; tinct. calumbæ, ℥iss.: syr. toluta, ℥ss.; ol. gaultheriæ, gtt. x.; aquæ fontanæ, ℥ij. Fiat mistura; cujus sumat coch. parv. mane ac nocte.

Or the following may be substituted:

℞. Sesquioxydi ferri, extracti taraxici, aa. ℈ss.; vini sherii, ʒvj.; tinct. gaultheriæ, ʒss.; aquæ font., ʒiv. M. Capiat coch. magn. bis in die.

The following is a very excellent tonic, and may be exhibited whenever any of the ferruginous preparations are indicated.

℞. Ferri citratis, ʒij.; syr. citri. *vel* aurantiæ, aquæ menth. pip., aa. ʒij.; aquæ puræ, ʒiv. M. Exhibe cochlearium purum ter quaterve in die.

In *young anæmic females*, with indications of a chlorotic condition of the system; and also in *children of strumous habits*, the phosphate of iron, exhibited in combination with the sulphate of quinine, is a therapeutic agent of great value.

℞. Ferri phosphatis, ʒj.; quiniæ disulphatis, gr. xii. M. Fiant pulv. xii., quarum. capiat unam bis terve in die.

A physician of great experience, and celebrated for his successful treatment of diseases of females, has employed for many years, and with much advantage, the subjoined combination of an alterative and a tonic in the management of *certain forms of uterine disease.*

℞. Syrup. ferri iodidi, ʒj.; tinct. actææ racemosæ, ʒv.; tinct. rad. aconiti, ʒiij. Fiat mist. cujus cap. gtt. xx. ter in die.

We have seen engorgement of the os tincæ and non-malignant induration of this organ, disappear rapidly under the persevering internal administration of the above tonic; while at the same time, the following ointment was applied once a week, by means of friction, with the finger, to the indurated os.

℞. Extracti hyoscyami., extracti conii., extracti belladonnæ, aa, p. e.

To each ounce of which mixture add one drachm of iodide of potassa—mix thoroughly, and apply as above.

℞. Ferri sulphatis, ʒij.: potassæ iodidi, ʒiss.; tinct. calumbæ, syrup zinziberis, aa. ℥ij. Fiat mist. capiat coch. parv. ter in die.

This mixture may be exhibited with advantage, whenever we desire to promote the absorption of *glandular enlargements*, and in all cases where a tonic and an alterative are indicated.

Not unfrequently the general practitioner will encounter cases of obstinate intermittent; and of uncontrollable *neuralgic affections*, which will resist, altogether, the effects of the ordinary antispasmodies, when singly administered. In such instances, we have often succeeded perfectly, by the combination and exhibition of a vegetable and mineral tonic,—as the following:—

℞. Liquor potassæ arsenitis, f.ʒiss.; tinct. cinchonæ, ℥iij.; syr. aurantiæ, ℥j. M. Hujus mist., sumat cochl. min. bis terva in die.

During the last two years, *intermittent fevers* have occurred more frequently, in some parts of this city, and in the vicinity of the city, than for many previous years. In some of those cases, where the disease has proved obstinate, not yielding to large doses of quinine, long continued, we have found it to be promptly arrested by the administration of a tea-spoonful of the following mixture, twice or three times a day,—the last dose being administered a short time before the period of the anticipated paroxysm.

℞. Quinæ sulph. ʒj.; liquor potassæ arsenitis, f.ʒij.; acidi sulph. aromat., f.ʒj.; tinct. cinch. co., syr. zinziberis, aa. ℥ij.

When the preparations of arsenic are employed, it is safest to give the medicine after a meal. When thus exhibited, larger, or more effectual doses may be given with more safety, than when taken fasting. Should, however, gastric irritation arise, under its use, or swelling and stiffness of the eyelids occur, the medicine should be immediately discontinued.

Should it from any cause be desirable to administer these remedies in the form of a pill, we may employ the following formula:—

℞. Acidi arseniosi, gr. ij.; quiniæ disulphatis, ʒj.; conserv. rosæ, ʒss. Misce optime, et fiat massa, in pilulas xxx. dividenda; sumat unam bis quotidie.

We have had, recently, much experience in the use of the different preparations of manganese, and have become fully satisfied, that this mineral tonic, in its different combinations, will prove a most valuable addition to our pharmaceutic preparations.

The presence of manganese in the blood, has been fully established by the experiments of MM. Millon, Hannon, and others; and, recently, M. Burin, in a memoir presented to the French Academy of Medicine, has given an analysis, by which he shows the amount of manganese in the blood globules, and exhibits the condition in which it exists. It is indeed as constant an ingredient of this fluid, in its normal condition, as iron, and it is well known that a dificiency in quantity, of both these metals, may be observed in the blood in many cases

of anæmia, chlorosis, tuberculosis, &c.; and hence the employment of manganese is proper, in most instances, where the administration of iron is indicated. Frequently, both may be given in combination, with great advantage.

The most important preparation of manganese, for pharmaceutical purposes, are the *phosphate*, the *malate*, and the *iodide* of manganese.

After the subjoined formula, we have administered, in *tuberculosis*, to a large number of patients, the phosphate of manganese, with most favourable results.

℞. Manganesii phosphatis, ʒ ij.; tinct. cinchonæ. ℥iij.; syr. sarsæ, ℥iv.; mucil. acaciæ, ℥j.; ol. gaultheriæ, gtt. xx. Fiat mistura, cujus sumantur, coch. duo vel tria minima bis terve in die.

Or we may administer, under similar circumstances, and to the same amount, the manganese combined with some of the preparations of iron; as in the following:—

℞. Manganesii phosphatis, ʒ iss.; ferri phosphatis, ʒ iij.; tinct. calumbæ, ℥ij.; syr. tolutan, ℥iv.; ess. gaultheriæ, f. ʒ j.

These mixtures should be kept in well closed bottles, and as the manganese is not altogether soluble, the medicine should be shaken before being administered.

The malate of manganese is considered by some practitioners a more eligible preparation, inasmuch as it is quite soluble, and the base of the salt is in the form of proto-oxide, the acid being easily digested.

℞. Manganesii malat., ʒ ij.; tinct. cinch., ℥ij.; syr. simp., ℥iv.; ess. limon, f. ʒ j. Fiat mistura, date coch. parv. mane ac nocte,

The iodide of manganese is an efficient remedy in the treatment of *glandular enlargements*, especially those of the neck, and of the spleen, in constitutional syphilis, and in the anæmia arising from scrofula and from cancerous affections.

It may be administered in the form of pills; or as a mixture in the following formula:—

℞. Manganesii iodid., ʒ ij.; tinct. cardamon., ℥j.; syr. sarsa, ℥v. Misce. Sumat. coch. parv. bis terve in die.

In a paper published in a late number of the Bulletin de Thérepeutique, M. Petrequin recommends a combination of manganese and iron, as a highly valuable agent in the treatment of disease. He has found these combined medicinal bodies, especially useful in blood diseases, such as the chloro-anæmia, after hemorrhage, operations, metrorrhagia, &c. In the chlorosis which appears about puberty, in that also which occurs at the critical period of women, especially when profuse hemorrhage prevails, and in the depraved state of the blood, which succeeds intermittent fevers, M. Petrequin has found the fero-manganese preparations of remarkable efficacy.—*American Med. Monthly, March, April, July*, 1855, *pp.* 170, 251, 31.

134.—ON THE ACTION OF QUININE.

By Dr. H. Bence Jones, F.R.S.

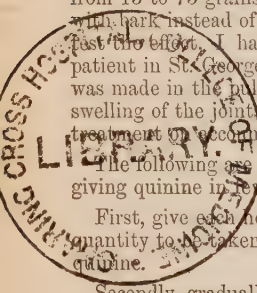
The physiological and pathological action of quinine in its passage through the system is given by M. Briquet to the following effect:—In from 2½ to 4½ grain doses, it stimulates the circulation, respiration, and nutrition. It may, in such doses, be said to elevate the principal vital actions. In doses of 9 grains and upwards, this effect is completely changed. In a few hours it produces general debility of the nervous system. For the first hour or two, there is excitement of the brain; congestion of the veins of the pia mater; a feeling of tension and pulsation in the head; sensitiveness to light; beating of the ears, vertigo, tremor of the limbs, palpitation of the heart; internal agitation and general excitement; heat of the skin, frequency of the pulse, and perspiration. After a single very large dose, these symptoms acquire great intensity. Then the most intense agitation, delirium, and even convulsions, are caused by diminution of the nervous power, and cerebral congestion. These symptoms last only for a short period; they are followed by those of the second period, in which there is feebleness and slowness of motion, prostration of strength, total loss of voluntary movements, dulness of sight, of hearing, double vision, amaurosis, aphonia from want of muscular action of the larynx; dyspnœa from paralysis of the eighth pair, and then paralysis of the limbs; diminution of force in the heart and vessels; feebleness of the pulse; more or less sudden stoppage of the heart's action, with loss of heating power. In small doses in health, quinine causes irritation of the mucous membrane of the stomach. In disease, it may cause inflammation of the stomach. On an ulcerated surface, it causes pain, inflammation, ulceration, and gangrene. It may cause irritation of the urinary organs, and pain and inflammation, like the balsams.

With regard to the pathological action of quinine, M. Briquet considers that it does not act directly on the marsh poison. It does not act on the general state of the organs, or on the blood: but it has especial action on the nervous system. c'est la médecine du quitte ou double, celle que les militaires emploient quand pour couper la fièvre ils avalent une double ration d'eau de vie chaude mélée de poudre á canon. It does not act by increasing the vital forces or by sustaining them. It is not by a tonic action, or an astringent action, or a stimulant action, but by a sedative stupifiant action. The other remedies for intermittents show the same sedative action; thus Sydenham cured intermittents with opium. Arsenic also, he thinks, acts on the nervous system, depressing the action of the heart, stopping the production of heat, and the functions of life. In small doses it may stimulate; in large doses it distresses. The same double action is perceptible with many medicines, as alcohol, æther, chloroform, nitre, digitalis, opium, and even in the action of heat, cold, light, and electricity, the same

double action is observable. The first action, when not excessive, is stimulating. The full force kills. Quinine cures neuralgia as it cures ague, by subduing the action of the nerves, not by any tonic action; opium acts more on the brain than quinine does, and it acts less on the ganglionic nerves than quinine; opium soothes and calms; quinine prostrates and destroys; this is its specific action. It is a palliative remedy, neither acting on the cause of ague nor on the structures generally, but as opium cures delirium tremens, so quinine cures ague.

In the treatment of typhoid fever, when there is excessive prostration, tendency to sleep, or coma, quinine should be avoided. It is most useful when there is excitement, agitation, excited eye and manner, and delirium.

In rheumatic fever, quinine succeeds much better when many joints are affected, rather than when the disease is limited to a single joint; from 15 to 75 grains were given daily to 250 cases. This treatment, with bark instead of quinine, was long since used, and disused. To test the effect, I have given 100 grains of quinine in 24 hours to a patient in St. George's Hospital, with rheumatic fever. No alteration was made in the pulse, no effect was produced on the pain, nor on the swelling of the joints, and on the third day I was obliged to omit the treatment on account of the sickness which ensued.



The following are the general rules established by M. Briquet, for giving quinine in fever:—

First, give each hour or second hour the sixth or twelfth part of the quantity to be taken daily, and leave ten hours' interval without any quinine.

Secondly, gradually increase the dose, until head symptoms, vertigo, and pain, are produced.

In ague, give the quinine so as to produce the maximum effect at the commencement of the febrile action, so as, if possible, to stop the access.

In typhoid fever, give quinine during the night, for the access comes in the afternoon. Quinine, when given in pills, is, in three hours, only one-sixth as active as when given in solution; in five hours, it is four-fifths as active as in solution. 30 grains in pills do not appear in the urine until six or seven hours after they are taken, while $4\frac{1}{2}$ grains when taken in solution, are detectible in the urine in from three to four hours; 15 grains used as an enema, appear in the urine in 12 hours. To produce any effect, the injection must be repeated many times daily.

Lastly, the absorption of quinine by the sound skin is very doubtful.—*Med. Times and Gazette, June* 9, 1855, *p.* 565.

135.—SULPHATE OF CINCHONIA AS A SUCCEDANEUM FOR THE SULPHATE OF QUININE IN FEVERS.

By Dr. Vahu.

At the time of the discovery of cinchonia, the learned and venerable M. Bally, physician of the Hotel Dieu, a sagacious and distinguished experimentalist, tried to combat ague with the sulphate of that alkaloid, and obtained, in the intermittent fevers of Paris, a success which proved to him that 4½ or 6 grains of it sufficed often to prevent the return of the attacks. Why the sulphate of cinchonia was soon abandoned for the sulphate of quinia we do not know; perhaps the use of cinchonia was not persevered in long enough. However it be, exclusive preference was given to the sulphate of quinia, a preference which, after the results we have obtained, seems to have been tainted with a little partiality. A more thorough investigation ought perhaps to have been made, in order the better to ascertain whether the effects of the sulphate of quinia, a medicine always very expensive, were in reality superior to those of the sulphate of cinchonia, a much cheaper remedy.

We have then accepted with joy the disinterested offer of M. Delondre, and without desiring to give too premature a judgment upon anything, we state, even now, that, from what we have seen in Africa, we consider the sulphate of cinchonia a succedaneum provided by nature itself for the sulphate of quinia.

We are aware that many eminent men will say: as regards cinchonia, the question is settled; the preference given for so many years to the sulphate of quinia shows enough its superiority. We will answer that one day (not very many years ago) it was maintained that carriages could be moved by steam, when a member of the Institute, very learned otherwise, asserted, basing his views on theories which seemed irrefutable, that the wheels of a locomotive could revolve on themselves, but never could describe a cycloid, and therefore steam locomotion could not be applied to railroads. Since then practical men have answered the illustrious theorist, who is obliged to travel 60 miles an hour when he goes on a journey.

We say then that the use of cinchonia in the treatment of fevers is to be tried by practical men, advantageously situated for that purpose. We say advantageously situated, for the results of the use of this remedy are really conclusive only when they are obtained in countries subject to miasmatic fevers, such as Algiers, for example; and because we, who have practised medicine in Paris for fifteen years, declare that we shall not receive as peremptory trials those made on fever patients in Paris; for there we have no miasmatic ague, and the intermittent fevers of the capital may be arrested and cured by a simple medication, and in the majority of cases without the use of the sulphate of quinia.

We leave our readers to judge of the use we have made of the sulphate of cinchonia in cases of intermittent and remittent fevers in Africa. We give thirteen cases, which might already appear conclusive, but we do not wish to be accused of being too hasty in our judgment; here we can experiment largely and continually. We live in a town of the province of Algiers (Cherchel) where the population is subject during the whole year to miasmatic fevers, but particularly from July to November; colonial villages very near us furnish us besides with a very large number of ague patients. On one side we have acted with the greatest prudence in order not to incur the reproach of endangering the life of the patients, by using a remedy uncertain in its effects; and on the other side we have acted with the greatest possible certainty, in giving cinchonia only in well marked cases; therefore we have given it particularly to patients attacked for the first time, and whose constitution was not yet deteriorated by the saburral condition which accompanies ague in almost every case. Here the sulphate of quinine, given for eight successive days in very large doses (15 grains and more every 24 hours), produces absolutely no effect, if the treatment has not been begun by an emetic or a purgative. We have here numerous examples of what we advance, in patients who wished to treat themselves without calling a physician, and who imagined they had only to swallow pills of sulphate of quinia to be cured.

As soon as the primæ viæ are cleared, the sulphate acts; we have then placed ourselves, as regards the administration of the salt of cinchonia, absolutely in the same relative position as when we have used the sulphate of quinia.

To abbreviate as much as possible our remarks, we have not spoken of the diet. We must then say once for all that our fever patients are always ordered to take the most nourishing and most tonic food; they eat as much as they like of meat, fish, and vegetables, and drink about the third of a pint of wine a day.

One word more, as regards the meaning of the word succedaneum, as understood by some physicians, who pretend that a medicament can be called succedaneum only when it acts after the specific remedy has failed. It seems to us that to mention such an opinion is to refute it.

Case I.—*Quotidian Fever.*—11 o'clock in the morning. N——, labourer at Cherchel, has had two fits of fever, which lasted from 11 o'clock in the morning till four o'clock in the afternoon. The three intermissions nearly equal. Treated the 20th of September, 1853, the third day of the disease. Marked gastric disturbance.

Sep. 20th, at 8 in the morning: Emetic; Ipecac. gr. xv.; tartar emetic, gr. jss. No exacerbation. The 21st: gr. xii. of the sulphate of cinchonia, in the form of aqueous solution, at 7 o'clock in the morning. The exacerbation precedes the usual hour. Chills at half-past 9 as violent as the preceding; vomiting follows the exacerbation;

The heat is not so great and lasts a shorter time than the preceding day; no sweat. The 22nd: gr. xii. at five o'clock in the morning; no exacerbation, no heat, no cephalalgia. The 23rd: gr. xii at 5 o'clock in the morning; nothing to record, no chills, no heat, no cephalalgia. The 24th: gr. ix. at five o'clock in the morning; nothing to record. The 25th; more cinchonia; wine of gentian as a tonic (extract of gentian 3j.; red wine, ℥iij. ℔j). No return of the exacerbations and the patient resumes his work.

Case 2.—*Remittent Fever.*—B——, gardener in the neighbourhood of Cherchel. has been ill several days, cannot tell exactly the period of the first invasion of the disease. Treated for the first time, September 29th, 1853. Marked gastro-intestinal derangement. The 29th: Ipec. gr. xv.; tartar emetic, gr. jss. The 30th: Sulphate of soda, ʒij. Oct. 1st, at 8 o'clock in the morning: gr. viiss. of sulphate of cinchonia; the dose repeated at 11, and at 2 o'clock in the afternoon. Exacerbation at 4 o'clock in the evening: it is not so strong; cephalalgia less violent. The fit lasts only two hours instead of four.

Oct. 2nd: gr. viiss., repeated three times, and at the same hours as the day before. A little cephalalgia only from 4 to 5 in the evening. Oct. 3rd: gr. viiss, at 8 o'clock in the morning; at three o'clock in the evening, gr. xii. Cephalalgia at 8 o'clock in the evening; it lasts the whole night. No tinnitus aurium, notwithstanding the xixss. grains taken. Oct. 4th: on account of the cephalalgia, which lasted all night, given gr. viiss. of the sulphate, at 5 o'clock in the evening; and gr. xii. at 8 in the evening. At 9 o'clock in the evening, slight headache, which lasts half an hour; perspiration, which continues for three hours; no tinnitus aurium.

Oct. 5th: gr. xv. of the sulphate, at 3 o'clock in the evening; no exacerbation, no cephalalgia; sleeps well the whole night. Oct. 6th: gr. xv. at 3 o'clock in the afternoon; at 9 o'clock in the evening, cephalalgia with tinnitus aurium; heat that lasts one hour; no chills; sleeps all night. Oct. 7th: xx. gr. at 3 o'clock in the afternoon; nothing to record. Oct. 8th, 9th, 10th, 11th, and 12th, nothing.

Case 3.—*Tertian Fever.*—Days constant, 8 o'clock in the morning. B., farmer, has been in Africa for two years, had, six months ago, a quotidian fever, treated by sulphate of quinia, and cured; has had three exacerbations before the treatment began, on the 6th of October, 1853.

Oct. 6th: vi. gr. of sulphate of cinchonia, at 4 o'clock in the morning; at 9, one hour after the usual time, heat for one hour, followed by abundant perspiration; sleeps from 11 o'clock in the morning till 12; no traces of exacerbation. Oct 7th: at 4 o'clock in the morning, xv. gr. of sulphate of cinchonia; no exacerbation; no cephalalgia. The sulphate was given that day, on account of the gravity of the exacerbation of the day before, lest the fever should become remittent. Oct. 8th (day of exacerbation): at 4 o'clock in the morning, vii. gr. of

the sulphate; no exacerbation. Oct. 9th: nothing. Oct. 10th: vi. gr. at 4 o'clock in the morning; no exacerbation. Oct. 11th and 12th, nothing.

Case 5.—Quotidian Fever.—10 o'clock in the morning. L., carrier, relapse, has been treated for the same disease, from the 10th to the 27th of September, with sulphate of quinia. Treated for the first time by us, October 7th, 1853. Marked gastric derangement. Draught composed of ipec. gr. xv., tartar emetic gr. jss. Oct. 8th: at 6 o'clock in the morning gr. xii. of sulphate of cinchonia. From half-past 3 o'clock in the afternoon till 7 in the evening, great cephalalgia, no heat of the skin, no sweat. Oct. 9th: at 11 o'clock in the morning gr. xv. of the sulphate, no exacerbation, no cephalalgia. Oct. 10th: cephalalgia from 6 to 8 in the morning; xv. gr. of the sulphate at 11 o'clock in the morning; cephalalgia less intense than the preceding days, from 4 to 6 in the morning; no heat, no sweat. Oct. 11th: gr. viiss. at midnight, and gr. viiss. at 2 o'clock in the morning; cephalalgia less intense than the preceding days, from 4 to 6 o'clock in the morning; no heat, no sweat. Oct. 12th: gr. viiss. at midnight, as much at 2 in the morning; nothing. From the 13th to the 20th of October, nothing.

Case 5.—Tertian Fever.—Days constant, 7 o'clock in the morning. D., muleteer, has never been sick since his arrival in Africa. Three exacerbations before treatment. Twice the fever came on at 7 o'clock in the morning, and left at 2 in the afternoon; the third exacerbation commenced at 4 in the morning.

The three stages are well characterized; no continued cephalalgia. The patient has had recourse to no treatment. Oct. 12th: gr. xv. of sulphate of cinchonia, at midnight. Complete absence of exacerbation. Oct. 13th, nothing. Oct. 14th: gr. xv. at midnight; no exacerbation. Oct. 15th, 16th, 17th, 18th, 19th, and 20th, nothing.

Case 6.—Remittent Fever.—Marked chills at 2 o'clock in the afternoon. A., farmer, has never been ill during eighteen months that he has lived in Africa. Three days ago he was attacked with remittent fever, accompanied with obstinate cephalalgia. Oct. 16th: at 9 o'clock in the morning, draught composed of ipec. gr. xv. and tartar emetic gr. jss., to combat a well marked saburral condition; at 11 o'clock in the morning of the same day xv. gr. of the sulphate of cinchonia, which are almost immediately thrown up by the efforts at vomiting induced by the ipec. I had prescribed cinchona, to be administered only after the effect of the emetic had passed off entirely. The exacerbation, characterized by chills, comes on at 45 minutes past 1 o'clock in the afternoon; the cephalalgia, less violent than the preceding day, continues the whole of the day and night. Oct. 17th: gr. xv. at 11 o'clock in the morning; no cephalalgia, no chills. Oct. 18th: gr. xx. at 11 o'clock. Nothing. Oct. 19th: gr. xx. at 11 o'clock. Nothing. From the 20th to the 24th of October, nothing.

Case 7.—Remittent Fever.—R., farmer, had, two months ago, irregular fits of fever, which he treated by pills of the sulphate of quinia; has not felt anything since that period. Three days ago, he was attacked with remittent fever; treated for the first time, Sept. 21st, 1853. Sept. 21st, on account of the concomitant gastric disturbance, given a draught composed of ipec. gr. xv. and tartar emetic gr. jss. Cephalalgia not so great. Sept. 22nd: at 8 o'clock in the morning, gr. xii. of the sulphate of cinchonia; little cephalalgia until 3 o'clock in the afternoon, when it increases, and lasts until the 23rd, at 6 in the morning. Sept. 23rd: gr. viiss. at 8 o'clock in the morning, and viiss. at 3 o'clock in the afternoon. Slight cephalalgia from 4 to 6 o'clock in the evening. Sept. 24th: gr. viiss. at noon; no headache, no heat. Sept. 25th: gr. viiss. at noon; nothing. From the 26th to the 30th of September, nothing.

Case 8.—Tertian Fever.—Days not constant, one o'clock in the afternoon. Diarrhœa as complication. B——, gardener, has had diarrhœa for a month. The fever is characterized by five exacerbations, which lasted from one o'clock in the afternoon till six o'clock in the evening. The period of heat is longer than the two others. Sept. 20th: ℥j. sulphate of soda at eight o'clock in the morning. Sept. 21st: gr. xii. of sulphate of cinchonia, at nine in the morning; the exacerbation occurs at half past one in the afternoon, half an hour later than usual, The sweat is less abundant, and that period of the fit lasts a shorter time than usual. The exacerbation is quite over at five in the evening. Sept. 22nd: nothing to record. Sept. 23rd: xii. gr. of sulphate of cinchonia, at nine in the morning; exacerbation at ten o'clock in the morning; it begins with the heat and ends by a great perspiration, at a quarter past eleven; duration, one hour and a quarter; comes on three and a half hours sooner. Sept. 25th: gr. xii. at three o'clock in the morning; no exacerbation at one in the afternoon, the usual time of the fever; a slight cephalalgia, which lasts one-quarter of an hour; since then, nothing; a good night. Sept. 27th: gr. ivss. at three in the morning; nothing. From Sept. 29th to Oct. 6th, nothing. Oct. 7th: at one o'clock in the afternoon, violent cephalalgia until five in the evening. Oct. 8th: cephalalgia immediately after the administration of the xii. gr. of sulphate of cinchonia, at nine o'clock in the morning; it lasts an hour. Oct. 9th; xii. gr. at five o'clock in the morning; cephalalgia from one o'clock in the morning till eight. Oct. 10th: gr. xii. at five in the morning; nothing. From the 11th to the 18th of October, nothing.

Case 9.—Tertian Fever.—Days constant, 11 o'clock in the morning. G., shoemaker, three exacerbations before the treatment; three well characterized stages; total duration from 11 o'clock in the morning till 4 o'clock in the afternoon; from that moment no cephalalgia. Sept. 21st: ℥jss. of sulphate of soda, to remedy the gastro-intestinal derangement. Sept. 22nd: gr. xii. of sulphate of cinchonia, at 9 o'clock in the morning. At 11 o'clock a little cephalalgia; no heat,

no sweat. Sept. 23rd: nothing to record. Sept. 24th: gr. xii. at 7 o'clock in the morning; no exacerbation. Sept. 25th: nothing to record. Sept. 26th: gr. xii. at 7 in the morning; no exacerbation. Sept. 27th, 28th, 29th, and 30th, nothing.

Case 10.—*Remittent Fever.*—F., farmer, had, two years ago, for ten days, a remittent fever, for which he was treated with pills of sulphate of quinia. Sept. 21st: ℥jss. of sulphate of soda. Sept. 22nd: the tongue remains white, and the coating is as thick as the day before. Ipec. gr. xv. and tartar emetic gr. jss. Sept. 23rd: gr. xii. of sulphato of cinchonia, at 5 in the morning; thrown up immediately. Cephalalgia the whole of the day. Sept. 24th: gr. xii. at 5 in the morning; tinnitus aurium at 8 o'clock in the morning; chills at 3 o'clock, and until 4 o'clock in the afternoon; no heat; cephalalgia from 4 o'clock throughout the night. Sept. 25th: gr. viiss. at 5, and gr. viiss. at 11 o'clock in the morning. Sept. 26th: constant headache during the whole of the 25th, but it is not so great to-day. Spent a tolerably good night. Sept. 26th: in the morning there is less cephalalgia. Sept. 27th: gr. viiss. at 5 in the morning, and repeated at 11 in the morning. The headache is decreasing in intensity; no chills, no heat, no sweat. Sept. 28th: gr. vi. at 11 o'clock in the morning; nothing. Sept. 29th: gr. vi. at 11 o'clock in the morning; nothing. Sept. 30th, and Oct. 1st and 2nd: gr. vi. at 11 o'clock in the morning; nothing. Oct. 3rd: wine of extract of gentian. Oct. 4th: cephalalgia from 2 o'clock in the afternoon till the next day. Oct. 5th: gr. vi. at 11 o'clock in the morning; cephalalgia from 2 o'clock in the afternoon till 6 o'clock in the evening. Oct. 6th: gr. viiss. at 11 o'clock in the morning; cephalalgia from 3 till half-past 4 in the evening; not so intense as that of the day before. Oct. 7th: viiss. gr. at 11 o'clock in the morning; nothing. From the 8th to the 15th of October, nothing.

Case 11.—*Intermittent Fever.*—D——, political exile, at Cherchel, carried on the trade of a joiner, when in France; has never been sick for twenty months, that he is in Africa. Attacked with fever Oct. 6th, 1853. The first exacerbation was ushered in by chills; the following days a continual heat, greater at 5 o'clock in the morning, and lasted until the next morning, with the same intensity. Has, before treatment, twice taken emetics, which produced abundant vomitings, and twice gr. viiss. of sulphate of quinia, on the 10th and 11th of October. Consulted me on the 16th of October; marked gastric disturbance, which calls for ipecac. gr. xv. and tartar emetic gr. jss., given at 8 o'clock in the morning. At noon, cephalalgia; at 5 o'clock in the evening, heat, until 7. Remission until midnight; at midnight, heat and cephalalgia until 5 in the morning.

Oct. 17th: gr. xii. of the sulphate of cinchonia, at 8 o'clock in the morning. At noon, slight cephalalgia, followed by abundant sweat; at night, no thirst, but constant watchfulness, without chills, nor heat, nor sweat. Oct. 20th: gr. xii., of the sulphate at 8 o'clock in the morning; nothing. From the 21st to the 30th of Oct., nothing.

Case 12.—*Quotidian Fever.*—6 o'clock in the evening. V——, terrace-maker, has been in Africa four months; was attacked with dysentery in the month of August, 1853; was then ill for eight days; attacked with quotidian fever on the 24th of October; he has had six exacerbations, has consulted me only on the 30th of October. Oct. 30th: marked gastric intestinal derangement. Emetic, composed of ipecac. and tartar emetic. Oct. 31st; ʒij. of sulphate of soda, in the morning; gr. xii. of sulphate of cinchonia, at 2 in the afternoon; no exacerbation. Nov. 1st; gr. xii. of sulphate, at 2 o'clock in the afternoon; still no exacerbation. Nov. 2nd and 3rd; gr. viiss. of sulphate, at 2 in the afternoon; nothing. Nov. 4th, 5th, 6th, 7th, and 8th, nothing.

Case 13.—*Tertian Fever.*—Days constant, in October. Days not constant in November. Exacerbations at 6 o'clock in the evening. B——, farmer, was attacked with tertian fever, Sept. 30th. The fever lasted eight days. Took, then, sulphate of quinia, and felt well for three weeks. Attacked with tertian fever Oct. 30th; did not this time take any sulphate of quinia; consulted me only on the 4th of November, after two complete exacerbations. Nov. 4th: gastric derangement. Draught composed of ipec. and tartar emetic. Nov. 5th: the exacerbation is expected at 6 in the morning; xii. gr. of the sulphate of cinchonia, at 2 o'clock in the morning. The exacerbation comes on at 5 in the morning; it is not so strong as the preceding day, the cold stage especially; the period of sweat less prolonged; it is all over at 9 o'clock in the morning. No cephalalgia. Nov. 6th, nothing. Nov. 7th: gr. xii. at midnight; no exacerbation. Nov. 9th: gr. xii. at midnight: nothing. Nov. 15th, 17th, and 19th, no exacerbation.—*Annuaire de Medicine*, 1855.—*American Med. Month. June*, 1855, *p.* 460.

136.—*Some Experiments on the Smoke of Tobacco.*—In Froriep's Journal, of a recent date, an interesting article has been published on the habit of tobacco smoking, and on poisoning by nicotine. Amongst the facts there mentioned, are the experiments instituted by M. Malapert, a pharmacien of Poitiers. His intention was to ascertain the exact quantity of nicotine absorbed by smokers, in proportion to the weight of tobacco consumed.

The apparatus used consisted of a stone jar, in which the tobacco was made to burn, connected with a series of bottles communicating by tubes. The bottles were either empty, or contained some water mixed or not with a little sulphuric acid. From a few experiments, it was found that, in the smoke of tobacco extracted by inspiration, there is ten per cent. of nicotine. Thus a man who smokes a cigar of the weight of seventy grains, receives in his mouth seven grains of nicotine mixed with a little watery vapour, tar, empyreumatic oil, &c. Although a large portion of this nicotine is rejected, both by the smoke

puffed from the mouth, and by the saliva, a portion of it is nevertheless taken up by the vessels of the buccal and laryngeal mucous membrane, circulated with the blood, and acts upon the brain. With those unaccustomed to the use of tobacco, the nicotine, when in contact with the latter organ, produces vertigo, nausea, headache, and somnolence; whilst habitual smokers are merely thrown into a state of excitement, similar to that produced by moderate quantities of wine or tea.

From further investigation it was found that the drier the tobacco the less nicotine reaches the mouth. A very dry cigar, whilst burning, yields a very small amount of watery vapour; the smoke cools rapidly, and allows the condensation of the nicotine before it reaches the mouth. Hence it comes that the first half of a cigar smokes more mildly than the second, in which a certain amount of condensed watery vapour and nicotine, freed by the first half, are deposited. The same remark applies to smoking tobacco in pipes, and if smokers were prudent, they would never consume but half a cigar or pipe and throw away the other. Smoking through water, or with long tubes and small bowls, is also a precaution which should not be neglected.—*Lancet, Sept.* 1, 1855, *p.* 200.

137.—CLINICAL REMARKS ON THE PREVAILING DISEASES.

By Dr. Robert Barnes, London.

[In those cases of disease, which terminate in death, we have no difficulty in referring them to their particular class in the nosological system, but in the case of those lighter affections, which end in recovery we can not always say to which class they belong: hence the necessity for the subdivisions depending on the groups of symptoms which are here adopted.]

A careful inspection of the tables, aided by the recollection of the leading clinical particulars, leads me to infer that the great character of the epidemic constitution of the past month has consisted, not in the operation of any poisonous element, or *leaven* foreign to the atmosphere, but in the varying influences of great heat and comparative cold, of dryness and wet; in short, in the agency of atmospheric conditions, which may be expressed by the language of the thermometer, the barometer, the hygrometer, and the anemometer.

That in all the forms of disease caused by these meteorological conditions, a poisonous element is concerned, and works in the human body I do not doubt, but that poisonous element is not derived from the atmosphere; it arises from the repression of various excretions, particularly those of the skin, in consequence of which certain noxious materials seeking elimination are thrown back into the circulation.

I do not, of course, forget that many other morbific causes, some casual and some constant, have been in operation amongst the classes which resort to our hospitals. Vitiation of the air from over-crowding, bad ventilation, and other causes, bad drainage, bad water, and bad food, have, no doubt, in many cases, had their share in the production and aggravation of the maladies recorded in this memoir. But inasmuch as these causes are at all times more or less active, whilst the character of the prevalent diseases change, it must be concluded that those meteorological conditions to which I have referred, are more especially to be connected with the forms of disease now described.

I proceed to trace the various phases under which the epidemic influence may exhibit itself.

The first and most powerful impression, struck by thermometrical and other ordinary vicissitudes of the atmosphere, is undoubtedly made upon the skin and lungs. The other parts of the system are affected secondarily. We may conclude that some perversion of, or interruption to, the normal functions of the skin and lungs is produced by the direct action of the atmosphere. It would be out of place to dwell upon the nature and importance of those functions; it is enough to point out that, if interrupted, certain effete matters, solid, liquid, and gaseous, are retained in the system. So retained and returned into the blood, they operate as poisons, disorder the economy, and induce pathological phenomena. The suppression or impairment of the eliminative function of the skin and lungs throws increased labour upon the other excretive organs; those have not only to discharge their proper refuse, but that also of the skin and lungs. Together with this increased amount of labour, they are subjected to direct irritation by matters possessing noxious properties being brought to them in the blood. Under the operation of these two causes, it will be expected that the internal excreting organs should frequently be diseased. Reflection upon various modes and degrees in which the epidemic influence may have acted, the compensating or alternating activity of the excreting organs, and the various susceptibilities of individuals, will also suggest the explanation why it is that the morbific epidemic influence does not act uniformly, and determine constant pathological phenomena. In the majority of persons the unwonted strain and irritation fall more especially upon the intestinal canal; in others, the stomach is affected; in others, the kidneys. I have observed instances in which it appeared to me that the bladder and urethra were affected, possibly from contact with irritating urine. The uterus is certainly liable to suffer, not only when the impression strikes at the menstrual period, but also during the inter-catamenial periods. The salivary glands also and the tonsils are very susceptible to engorgement and subacute inflammation.

Occasionally the morbid impression does not induce any marked secondary disorder in the internal organs at all; it appears to be exhausted in the structures that received the first impression. Thus we

see pulmonary catarrh and various forms of rheumatism and neuralgia. But more commonly the effects are not confined to any particular organ; the whole economy is disturbed, and many organs are notably diseased simultaneously. Thus we often observe rheumatism, and catarrh of the whole respiratory and alimentary mucous tracts, as well as disorder of the kidneys, in the same individual.

I pass by, upon this occasion, any special reference to cases belonging to the sporadic classes, although many of them invite to clinical analysis.

Let us examine the particular forms which the zymotic affections have presented. A glance at the tables reveals the remarkable fact that a very large proportion of the whole number of cases belongs to the zymotic class. This is the more striking because it refers to a period which is, as we learn from the Registrar-General's returns, one of comparative healthiness. It serves to place in strong relief the importance of studying the current epidemic constitution.

The most striking and the most common form of zymotic disease is that of diarrhœa. In 37 out of 106 cases of the current epidemic, intestinal catarrh existed in the simple form.

The first symptoms frequently appear gradually, or suddenly, without being preceded with by any cause or external impression to arrest the observation of the patient. Sometimes they are referred to cold or wet. Shivering is often one of the earliest symptoms; then flushes of heat; skin, often dry by day, perspires freely at night; pains are felt in the joints and limbs; the tongue is sometimes much furred, yellow, and clammy, but much more frequently clear, moist, and more vividly red than natural; vomiting is very common, the matter vomited being watery, tinged with bile, and mixed with mucus; the bowels are almost always loose, the flux being watery, mucous, or bloody, and generally, but not always, tinged with bile. When bile is not present it may be conjectured with more probability that the duodenum is congested so as to obstruct the flow of bile into the intestine, than that the secretion of bile is arrested.

Pain in the stomach is generally complained of, but sometimes there is spasm, and both the stomach and intestinal canal are so irritable as to reject everything that is swallowed. The urine in many cases is thick, loaded with mucus, and sometimes tinged with blood. Fever and prostration testify to the general disturbance.

Cases in which the symptoms set forth are present may be regarded as examples of gastric and intestinal catarrh. The condition of the alimentary mucus membrane is one of subacute inflammation or congestion, and the effusion of watery mucus, sometimes attended with blood, in considerable quantity, is the mode adopted by nature for relief.

But in a large number of cases the respiratory mucous tract is at the same time affected in a similar manner. In no less than forty instances, catarrh of the bronchial mucous membrane existed alone, or

complicated with other forms. There is, in addition, cough, attended by copious expectoration, and sometimes hæmoptysis. The affection of the respiratory mucous membrane is commonly universal: the larynx, trachea, and bronchi are simultaneously attacked. The condition, although severe, can hardly be called bronchitis: it is one, as I conceive, quite analogous to that of the intestines; there is congestion, and perhaps subacute inflammation. This is what I mean to express by pulmonic and tracheal catarrh.

I have also observed cases in which the uterine mucous membrane was similarly affected. Copious leucorrhœa, preceded in a few cases by hemorrhage, has indicated, to my mind, in uterine catarrh, arising under the same circumstances as the intestinal affection.

If the *contre-coup* of the impression made upon the skin and lungs is not felt in the intestinal canal, then it may be carried with more danger to the kidneys. In the tables, there is one case of congestion or inflammation of the kidney from this cause, resulting in general dropsy and albuminuria.

In three cases, whether from intensity of the epidemic influence, or unusual susceptibility, the diarrhœa and bronchial catarrh have not been the most prominent symptoms. The fever has been so great as to assume a typhoid aspect; the intellect has been oppressed; prostration complete; tongue dry and furred. I have concluded that these were not cases of pure fever. Although severe, and in two children even ended fatally, they wanted some of the pathognomonic characters of fever. It appeared to me that the typhoid symptoms were due to the presence of the excessive quantity of toxical materials in the circulation. A young man whom I admitted as an in-patient was at first considered to be suffering from fever. The delirium and other typhoid symptoms were accompanied by bronchitis, which in various parts of the chest passed into pneumonia, and by diarrhœa. His condition at the time of admission appeared hopeless; but by subjecting him, in the first instance, to the same treatment as that followed in simple intestinal and pulmonic catarrh, adding blisters, and early resorting to quinine and nutritive diet, he recovered favourably.

In a certain proportion of cases, the intestinal irritation lapses into dysentery, marked by tenesmus and mucous and bloody stools. A considerable number are liable to relapse, after being apparently cured. No doubt the same causes act again, and the yet irritable mucous membrane readily rebels against the inappropriate food in which people who think themselves recovering are apt to indulge.

Pains in the stomach and a disposition to relaxed bowels are apt to persist for two or three weeks after apparent recovery.

I have not yet observed any case of death in adults.

In children the affection is far more dangerous. The most common form is that in which both the alimentary and respiratory tracts are involved. The fever is always more intense, the skin generally dry, and the prostration greater.

The various forms of rheumatism and neuralgia do not call for particular description. Facial neuralgia, with swelling, has been one of the most common.

Diagnosis.—It is clear that the diarrhœa of the present season, especially if viewed in relation to the other forms assumed by the epidemic, is a very different affection from the choleraic diarrhœa of last autumn. This should be borne in mind in reading the Registrar-General's Returns of this year and the last. The disposition to attack all the mucous membranes is a striking and peculiar character.

Treatment.—The principle of treatment I have adopted is based upon the etiological and pathological views detailed. In applying that principle I have been guided more by the view I have taken of the pathognomonic features of the epidemic in the aggregate than by the particular manifestations of the epidemic influence observed in individual cases; and the treatment, although simple and varying very little in different cases, howsoever various the symptoms might appear, has been generally successful.

The great indications are to restore the functional activity of the skin, and to avoid adding to the irritation of the mucous tracts. Warm-baths, especially in children, give great and often speedy relief. Nothing but bland fluids should be taken into the stomach. The great object is to give it rest. The medicines I have used are, solution of nitrate of ammonia, half an ounce; mint-water, half an ounce; nitrate of potash, ten grains; and five grains of Dover's powder, every five or six hours. When there has been much irritability of the stomach, I have added three minims of hydrocyanic acid to the dose. It rarely happens that rest and observance of this treatment will not arrest the fluxes and restore the action of the skin. But care in diet is important for some days afterwards. After the arrest of the diarrhœa I have given acetate of ammonia, with infusion of gentian or quassia, commonly adding either ten minims of chloric ether, or three minims of hydrocyanic acid. This mixture acts remarkably well in restoring tone to the mucous membrane, and completing the recovery. I do not find that astringents, such as logwood and chalk mixture, answer well in the first instance; sometimes they increase the pain, and add to the severity of the symptoms generally.

I have already stated that I have not found it necessary to modify this treatment materially in the different forms of the disease. It is equally successful whether diarrhœa, pulmonary catarrh, rheumatism, or neuralgia, be the *prominent* symptom.

It may be observed that the history of these cases completely subverts the common prejudice that the diarrhœa is caused by eating fruits and vegetables. An irritating diet may affect the intestinal canal, but it cannot account for the pulmonary, renal, and rheumatismal symptoms.—*Lancet, Sept.* 8, 1855, *p.* 214.

138.—*On the Employment of Tannin and Tannic Acid.*—Dr. Berthold draws attention to the great efficacy of [illegible] mode of treating *chilblains*, and preventing their relapse. [illegible]ckens of bruised galls are boiled for a quarter of an hour in half a pint of water, and strained. The fluid is applied to the parts two or three times daily for a quarter of an hour. The itching and burning diminish in two or three days, and ulcers heal in about a week. The same effect results from an infusion of oak bark, made with ℥j. of water to ℥j. of bark, and standing twenty-four hours. The solution of half an ounce of tannic acid in half a pound of water may also be used. For preventing the occurrence or relapse, any of these may be employed once a day, or if the chilblains are not broken, tincture of galls may be used.

Dr. Bühring speaks highly of the power of tannin in *arresting hemorrhage*, when applied thickly on a piece of soft sponge to the bleeding part. No pain or irritation results, the healing process is expedited, and the firm plug that is formed offers great security against future bleeding. Dr. Mund also states its styptic power is remarkable, especially in epistaxis and hemorrhage after tooth-drawing. A plug of charpie is moistened in water, and dipped in the powder.

Its use, however, is far from being limited by its styptic agency, it being applicable in most disordered secretions dependent upon debility of vessels. Thus, in *chronic leucorrhœa* ℈j. of tannin dissolved in four ounces of water, with the addition of ℥ss. of gum arabic, forms a good mixture for internal use, as well as an injection, and the affection soon yields. The same mixture is an excellent one in *chronic diarrhœa*, and the third stage of dysentery, although it is taken unwillingly by the patients. It is also useful in the third stage of *pertussis*, given in the following form:—℞. Tannin gr. vi., ext. belladon. gr. i., ext. cicutæ gr. iv., infus. semnæ c. ℥ii., aq. fœnic., syr. althææ āā ℥j. A spoonful every two hours. Dr. Kipp testifies to the great utility of tannin in menorrhagia, and excessive fluor albus; a continued use of it for two or three months, in increasing doses, has in many cases completely succeeded, when organic mischief has not been present. Sometimes oppression of the stomach results from its use, which is usually relieved by temporary suspension, diminution of the doses, or the addition of aromatics. The dyspeptic condition, which results from the loss of blood, is relieved by its use, the loaded tongue cleaning, and the appetite and stools returning. He generally gives it in the form of pills, of one to five grains, three or four times a day, adding rhubarb or aloes in the event of constipation occurring, a due regulation of the bowels being essential during its employment. He also uses it with advantage externally in various forms of ophthalmia, as that of infants, catarrhal ophthalmia, &c., increasing the dose from three to ten grains per drachm.—'Buchner's Repert.'—*Med. Times and Gaz., Sept.* 15, 1855, *p.* 271.

139.—INFLAMMATION OF THE OS AND CERVIX UTERI.

By Dr. E. Rigby, Senior Physician to the General Lying-In Hospital.

In treating the subject of inflammation of the os and cervix uteri, I must beg it to be remembered that I do not feel justified in looking upon it commonly as a primary idiopathic complaint; but rather as one which is of a secondary character, or, in other words, symptomatic of some cause the presence of which has induced it. I can no more look upon inflammation of the os and cervix uteri as a primary disease, causing derangement of the general health, &c., than I can upon a gouty toe, a rheumatic knee-joint, or enlarged strumous gland. Most of these uterine affections are the local manifestations of some general derangement, but which, in their turn, re-act as causes producing their own set of sympathies and effects. The female generative organs, situated at the lower part of the trunk, supporting the chief weight and pressure of the intestines, and subject to great periodic alternations of vascularity, not to mention the wonderful changes they undergo during pregnancy and parturition, are rendered peculiarly disposed to be affected by any morbid action which may occur, especially in the great machinery of the chylopoietic system, and liable to be fixed upon in the various blood diseases, to localize their energy and expend their virulence upon. It will therefore be seen, that there are few affections of the general health in a female in which the generative system is not more or less affected or involved; and, although these local affections, which in the first instance are mostly effects of deranged health, react, and produce in their turn considerable sympathetic derangement; yet it must ever be borne in mind that, unless a distinct local cause be present, they must be looked upon as "the local manifestations of a general derangement," in order that we may form correct and rational ideas respecting their nature and treatment.

I cannot understand on what grounds it can be justifiably asserted that the uterine organs follow a different law in this respect to any other organ or parts of the body. If we take the various morbid appearances which the mouth presents, as regards the tongue, fauces, tonsils, &c., we do not usually look upon these as purely local affections producing symptomatic derangement, but as the local effects and evidences of a general condition of health, and should condemn the treatment which advocates mere local applications in these affections as highly empirical and unscientific.

Inflammation of the os and cervix rarely occurs as an acute affection, but, in by far the majority of cases, in a subacute or chronic form. It is marked by continued aching pain about the lower part of the pelvis, extending to the back, and much increased by the erect posture and by exercise, and especially aggravated by sitting down suddenly on a hard seat, by the passage of hardened fæces, and particularly by sexual intercourse. It is usually attended with a sense of heat, weight, and throbbing, with more or less irritability of the bladder. At first,

the pain is not constant, but is allayed by rest; so that she is perfectly easy in the recumbent posture, but by degrees it scarcely ever leaves her, and she gradually becomes aware of sharp darting pains, like a sudden prick or stab flying through the pelvis from time to time.

A white creamy discharge from the vagina accompanies this affection, and was first pointed out by Sir C. M. Clarke as diagnostic of inflammation of the cervix uteri. It "is opaque, of a perfectly white colour; it resembles in consistence a mixture of starch and water made without heat, or thin cream. It is easily washed from the finger after an examination, and is capable of being diffused through water, rendering it turbid."

Inflammation of the cervix uteri is mostly accompanied by considerable derangement of the digestive organs, and by an atonic state of the system generally The face is pale, or, perhaps, sallow, the pulse is feeble and irritable, the tongue pale and flabby, or red, dry, and rough, from the presence of uterine irritation; and the vital powers are depressed.

It is caused by whatever tends to produce or keep up uterine congestion. Constipated bowels and torpid liver are decidedly two of the most frequent general causes of this affection. An intestinal canal, loaded with large fæcal accumulations, not only obstructs the returning circulation from the pelvic viscera, as is so commonly seen by its effects in producing an hemorrhoidal habit, but by pushing down the uterus into the pelvis lower than is natural for it, its venous circulation becomes also impeded, and considerable engorgement of the organ is produced. Thus it will be intelligible how, in atonic habits, a slight degree of prolapsus uteri will frequently produce this condition of the cervix; and hence it is that inflammation of the cervix often follows an abortion, especially if she has got up too soon after its occurrence. The patient, weakened by the loss, has risen from the recumbent posture while the uterus was still large and heavy, and the soft parts too relaxed to give it the proper amount of support.

As in dysmenorrhœa the local congestions, whether uterine or ovarian, are sometimes a result of an impure or morbid condition of the circulation, so here also we occasionally meet with inflammation of the cervix as the local manifestation of a general cause, resisting ordinary treatment, although fairly amenable to such as is indicated by the nature of the general affection.

Considering the amount of general derangement of health which attends a case of ordinary inflammation of the os and cervix uteri, it is highly desirable to premise some doses of alterative and laxative medicine, and thus to clear out the bowels, &c., before proceeding to any special local treatment. A dose of blue pill for two or three successive nights, and a brisk laxative the following morning, frequently produce such a change in the general symptoms as to materially alter the severity of the uterine affection. By restoring the liver to healthy

action, and clearing the intestines of a large quantity of fæculent matter, the abdominal circulation becomes greatly relieved, and local congestion proportionably diminished. Indeed, we can scarcely be said to have ascertained the real extent of the local affection, until this treatment has been premised. If the os uteri still remains much congested and swollen, and, upon examination with the speculum, appears of a dark red colour, it is better at once to scarify the part, as being the quickest and most effective mode of relieving the patient. The blood starts at the slightest touch of the scarifying lancet, and two or more ounces are quickly taken away, with immediate diminution of her symptoms. The horizontal position must be strictly enforced, so as to give the empty vessels time to lose their dilated condition.

If the disease has assumed more of the chronic character, and, therefore, the glandular tissue of the cervix more involved, leeches are generally preferable. After the bleeding has ceased, the vagina should be repeatedly washed out with a warm decoction of poppies.

Besides the alterative and laxative medicines to which I alluded, she should take some alkaline mixture to improve the state of the urine, which is usually very acid under these circumstances, and thus allay any disposition to irritation of the bladder. No combination is better than small doses of the bicarbonate and nitrate of potass, and she may continue to use this after meals, even when she has commenced the use of mineral acids and tonics. The nature of the constitutional symptoms will point out how far the alterative and tonic plan of treatment must be modified; but the general indications are to restore the digestive organs to a healthy condition; to relieve local congestion, and invigorate the system.

If the glandular tissue of the cervix be much implicated, the induration of the part very considerable, and the lancinating pains frequent and severe, the above treatment must be more or less modified. It is generally preferable to apply leeches to the anus, not only to relieve hemorrhoidal congestion, which is usually present, but in order to avoid the irritation and even slight inflammatory action, which the bites are apt to produce.

A suppository of diacetate of lead and conium is a useful application in these cases; and, where the patient is too much reduced to bear leeches, becomes a valuable substitute for them. For the same reason the well-known lotion of Goulard and decoction of poppyheads is useful in these cases, and, when retained in the vagina for some minutes, produces much relief to the patient's suffering.

Mrs. H., aged 27, young looking, diminutive, delicate, married eight months.

March 30, 1847. Complains of pains in the loins and lower part of the abdomen and back, increased by standing and exercise; albuminous discharge; tongue and bowels natural; suffers from dysmenorrhœa; has lately been suffering from neuralgic headache.

One month after marriage was hurt by the pommel of her saddle, and aborted a month afterwards. She has had a second abortion two months ago, apparently at the same period of pregnancy.

Examination per Vaginam.—Uterus natural; os and cervix extremely tender, and throbbing distinctly. Some leeches were applied immediately; they filled in ten minutes, and bled freely. Acid. nitro-muriat. ex infuso gentianæ comp. ter die. Liquor plumbi c. decocto papaveris pro lotione.

April 8. Relieved, but not sufficiently so. Is suffering from arthritic pains of her limbs; the urine is turbid. &c. ℞. Pulv. guaiaci, magnesiæ, āā gr. x. M. Ft. pulv.: om. mane sumend. ℞. Acidi hydrochlor. dil., acidi nitrici dil. āā ℥i., extr. taraxaci ℈i., decoct. sarzæ comp. ℥viij. M. Ft. mist. Sumat cochl. magn. ij. ter die.

30. Some more leeches were applied to the os uteri; they bled sparingly.

Examination per Vaginam.—Os and cervix much less swollen and tender. Rep. med.

May 14. Was relieved for a day or two: has no darting pains, but a continued pain of the back, and has still the white creamy discharge. The catamenia appeared on the 8th, preceded by rather more pain than usual. ℞. Pulv. guaiaci, magnesiæ, āā gr. x. M. ft. pulv. o. m. s. ℞. Decoct. sarzæ comp. c. liq. calcis, ter die.

As she was living in a new house, built on a damp clay soil, I was much inclined to attribute the state of her general health to the nature of her residence, and urged her to go into the country as soon as she felt strong enough. This soon produced a considerable improvement. Although preceded by a good deal of pain, the next catamenial period was natural; the darting pains had entirely ceased, and the leucorrhœa nearly so. She came to town after a fortnight's stay in the country: she was still pale and weak, and suffered a good deal from pains in her limbs, but the digestive organs were in a more healthy state, and the appetite better; and I put her upon nitro-mur. acid with the succus taraxaci and infus. gentianæ comp. She returned to the country immediately, and continued to improve in strength and looks; the two following menstrual periods were attended with much less pain, the discharge was more copious, and producing greater feeling of relief. She continued the above mixture until September, regulating the bowels with the guaiacum and magnesia powders.

I saw her again in September. She had passed one catamenial period, and was beginning to suffer from a severe pain in the pelvis (not of a throbbing or darting character), exactly as had been the case at the commencement of her pregnancy. ℞. Extracti taraxaci fluidi coch. med. j. o. n. Rep. pulv. guaiaci c. magnesiâ, o. m.

If the pain be severe, let her take gr. v. or x. of Dover's powder.

She was much relieved by this treatment. She regulated the liver and bowels by an occasional dose of blue pill, &c., and was safely delivered of a healthy child the following May.

Beyond the fact of her suffering occasionally from headache of a neuralgic character, there was but little evidence to point out the presence of an arthritic diathesis of the system. The predominant symptoms were the pelvic pain increased by the upright posture, and the white, creamy discharge, described by Sir C. M. Clarke, in a delicate female, enfeebled by two early abortions, rapidly succeeding each other. The examination, per vaginam, put the nature of the case beyond doubt. The uterus was healthy, but the os and cervix throbbing with arterial excitement, and intensely painful when touched. I might have added, that these parts were considerably swollen, and of a deep red blush. As leeches were at hand I applied them myself, and certainly never saw the process of taking hold and filling performed so rapidly as on this occasion. There was one leech which actually came off well filled in seven minutes. I almost regret that I did not scarify the part instead; but she was weak, and I do not think could have borne a larger loss of blood without inconvenience. The state of the tongue and bowels did not indicate any alterative or laxative medicine, and I merely gave the nitro-muriatic acid in infus. gentianæ co., and desired her to use the decoct. papav. c. liq. plumbi as an injection.

The inflammation of the cervix was quickly relieved by the leeches, although not entirely removed. She now acknowledged to having arthritic pains of her limbs; the urine was thick. I therefore gave her the guaiacum and magnesia powders o. m., and ordered a mixture of nitro-muriatic acid with taraxacum and sarsaparilla. In a month after the first application of the leeches, they were repeated. They bled much less this time, as, indeed, might be expected, the os and cervix having become much less tender and swollen. Again the relief was but temporary; the white creamy discharge continued. There was still much pain of back, and the next catamenial period was preceded by a good deal of suffering; the rheumatic or arthritic habit of her system appeared to be the cause which kept up the local congestion, exactly as is so commonly seen with a sprained joint, or other injuries in a gouty subject. She had been accustomed to live in the country, and had not enjoyed good health since being in her present residence; moreover, the symptoms of the general derangement did not yield so readily as I might have expected; and feeling, therefore, convinced that a change of air was necessary, I urged her to try a fortnight in the country. A decided improvement was immediately perceptible; arrangements were made for a permanent residence in the country. She quickly recovered her health, and pregnancy, with a successful result, followed.—*Med. Times and Gazette, Sept.* 29, 1855, *p.* 315.

140.—*On the Employment of Wine in Enemata, especially in the Treatment of Chlorosis, Dyspepsia, Pulmonary Phthisis, and during Convalescence from severe Disease.*—The employment of medicated

enemata, says M. Aran, the well-known physician to the Hôpital St. Antoine, is of very ancient date; but I have sought in vain for any mention of the administration of wine by this means amongst the older authors. Hoffman also recommends it for subjects whose strength is failing; it is not, however, to this renowned physician that I owe the idea of making use of wine-enemata in various diseases. I read M. Cazin's exposition of a mode of treatment adopted by him in chronic diarrhœa, which consisted in the employment of wine and eggs in lavements. I had at this time under my care in the Hotel Dieu, a woman 35 years of age, affected for thirteen weeks with diarrhœa that nothing could control; she was exceedingly anæmic and had œdema of the feet, but no albuminuria nor heart affection. Three lavements of wine were administered to this patient daily, and although neither instantaneous nor complete, the result was, nevertheless, very remarkable; the number of the stools diminished, strength returned, œdema disappeared; the patient in a great degree resumed her natural complexion, and was occupied about the ward. I was so struck by the influence of the lavements on the general condition of this patient that I asked myself, whether during convalescence from serious diseases, when the digestive functions are languid, the convalescence might not be shortened by this means; if in cases, where the stomach would not bear aliment, it might not be possible to get up the patient's strength by such treatment. Repeated trials have now convinced me of its usefulness, and in no cases more than those of pulmonary phthisis, where I have employed it with great advantage to check diarrhœa.—*Bull. Thérap.—Dublin Hospital Gazette, Feb.* 1855, *p.* 13.

141.—SYRUP OF HYDRIODIC ACID.

By James Murdoch, Esq.

Hydriodic acid in a liquid form has been introduced into medicine by Dr. Andrew Buchanan, as having the therapeutical powers of iodine without its irritant action. It has also been employed by him in the treatment of choleraic disease, and, accordingly, becomes a preparation of considerable interest.

The following speedy formula he has given for preparing it:—Take of tartaric acid 264 gr.; iodide of potassium, 330 gr.

Dissolve each separately in f ℥jss. of distilled water; mix the solution, agitate and strain to separate the bitartrate of potash, adding water to make up the measure to f ℥vj¼. Each fluid drachm of this solution should contain 5.072 grains of hydriodic acid, equal to about five grains of iodine. When the solutions are mixed, the liquid assumes a slight yellow colour, and in ten minutes after gives a slight tinge of violet with a cold solution of starch, which gradually changes to a deep blue.

This rapid decomposition appears to arise, in some measure, from the agitation necessary to effect the separation of the bitartrate, and

consequently, greater contact with the air. When hydriodic acid is prepared by the sulphuretted hydrogen process, it does not show decomposition for an hour or two after it is prepared; but if moderately agitated it shows the presence of free iodine much more speedily. It is, therefore, essential, in dispensing this acid, to prepare it extemporaneously, and supply it frequently to obtain its medicinal action. It may be very speedily prepared by the above process; and, for convenience, the solutions may be kept ready made and mixed when required; but as 264 grains of tartaric acid in f ℥ iss. of distilled water measures f ℥xv. and 330 grains of iodide of potassium in the same quantity of water measures f ℥xiv. it will be necessary to employ them in these relative proportions. Dr. Buchanan also directs it to be taken in starch gruel, which has the chemical effect of combining with the iodine that is liberated during the time of its administration.

I find that hydriodic acid may be prevented from undergoing this decomposition when in the form of a syrup.

The antiseptic properties of sugar are well known to the pharmaceutist, in the vegetable kingdom in the case of vegetable syrups, and in the mineral kingdom in the case of certain protosalts of iron, where the presence of sugar prevents the latter from becoming peroxidized by the absorption of oxygen, as in the cases of the carbonate, iodide, and protonitrate of iron.

What method, therefore, will be best adapted for the preparation of this syrup? In the usual way of preparing hydriodic acid, by passing sulphuretted hydrogen through iodine suspended in water, the iodine is very apt to be enveloped in portions of the sulphur that is set free, and escape the action of the H S. This being guarded against, a solution of hydriodic acid could be obtained, from which a syrup might be prepared, if cautiously operated upon, that would contain no free iodine. The repugnance, however, that is usually felt by the pharmaceutist to the employment of H S, as the means of preparing pharmaceutical products, would render this process objectionable, although it should be found to be in other respects available.

With another means of preparing this acid, by decomposing a solution of iodide of barium by the equivalent of sulphuric acid, and filtering to separate the insoluble sulphate of barytes, as the iodide of barium itself is an unstable compound, it would be necessary to prepare this salt at each manipulation.

Assuming, therefore, that if a syrup can be prepared by Dr. Buchanan's solution, that shall contain no free iodine, it will furnish the most suitable manner of obtaining this acid for medicinal purposes, I have to propose the following proportions for a syrup. It is necessary, however, to observe, as one of the conditions of success, that the iodide must be free from any trace of iodate of potash.

Of four different samples of iodide that came under my notice, all gave a slight iodine reaction with solution of tartaric acid and starch.

These, although containing extremely little of the other impurities usually found in iodide of potassium, were contaminated with a minute portion of iodate of potash. They had been prepared by what is known as the caustic potash process, and accordingly extremely liable to contain some undecomposed iodate. But, as it is quite possible to produce a salt by this process that shall be entirely free from even a trace of iodate, I think it is only necessary to guard manufacturers against this salt occurring in their product, to make it suitable for preparing hydriodic acid. I have, accordingly, used an iodide prepared by the Pharmacopœia method of decomposing the solution of iodide of iron by carbonate of potash :—

The Syrup.—Take of sugar ℥ij. ʒss. ; water ʒv. ; dissolve in a flask with the aid of heat, and allow it to cool. Prepare solution of hydriodic acid as before mentioned, without adding any of the additional water. This operation should be done speedily, and it may answer for that end to strain it through calico. If paper were used, decomposition would show itself before filtration could be completed, unless the quantity was small. Of this strong solution take f ℥ss. and ♏j. and mix with the syrup. The whole should measure f ℥ijss., and each f ʒj. contain the equivalent of gr. ij. of iodine.

Or it may be prepared by dissolving the hydriodate and tartaric acid, each in syrup, instead of water, mixing them together, and letting it stand for a few hours, to allow the bitartrate to settle, and pouring off sufficient for the required quantity of syrup. With this latter made, which appears the more feasible of the two, a slight decomposition takes place with the syrup, in the first instance, probably owing to the quantity of sugar being insufficient to preserve it ; but, after being mixed with the larger portion of syrup, it remains unchanged.

Syrup of hydriodic acid, by the first method, I have had prepared since the 3rd of June, and it remains nearly colourless. I have also syrups having some colour, which have been made for several months, that have the same appearance as when first prepared. In a syrup prepared early in the winter the sugar has crystallized out of the solution, and the liquor on the surface, now weak of sugar, has a bright yellow colour, and gives a strong reaction with starch ; but the crystallized portion is not affected by it unless a little nitric acid is also added, when it reacts strongly.

Hydriodic acid being gaseous it will not be possible to procure it in a solid form combined with sugar. When a strong solution is mixed with powdered sugar and moderately heated, it gives off bubbles of hydriodic acid, becoming darker in colour, reacting strongly with starch, and ultimately becoming completely black, with abundance of free iodine.

The precise action of sugar with reference to these compounds that have been named, is still obscure. Klaur considers that a regular compound is formed in the case of carbonate of iron, but the subject

of this notice is an instance where the action of sugar is not confined to salts of iron.

In conclusion, it is very probable that the protective agency of sugar is exercised over many other decomposable substances that have not been examined as to this property; and if it be so, it must become of corresponding importance as a chemical agent in pharmacy. 'Pharmaceutical Journal.'—*Dublin Hosp. Gaz., Oct.* 1, 1855, *p.* 264.

142.—*Collodion in Orchitis.*—Prof. Costes relates cases of this disease in which, after covering the scrotum with a mixture of 20 parts of collodion and 6 of ol. ricini, the swelling and pain were quickly relieved, and a rapid and complete cure was obtained.—*American Med. Monthly, Jan.* 1855, *p.* 68.

143.—*St. John Long's Celebrated Liniment.*—The yolk of an egg; oil of turpentine, f. ℥iss.; strong acetic acid, f. ℥i.; pure water, f. ℥iii.; first rub the yolk of egg, the water, and the acetic acid together, then add the oil of turpentine, and agitate the whole until they are well mixed. This counter-irritant liniment is applied by means of sponge; its effects vary with the force which is used in rubbing, and the length of time the application is continued.—*Dr. Neligan's Materia Medica.*—*Edinburgh Med. Jour., July* 1855, *p.* 53.

144.—*Formula for the Internal use of Chloroform*—M. Dannecy, pharmacien, at Bordeux, recommends the following formula:—Pure chloroform, haf a drachm; oil of sweet almonds, two drachms; gum arabic, one drachm; syrup of orange flowers, one ounce; distilled water, two ounces; mix the chloroform with the oil, and make an ordinary oily draught. The author also gives a very ready mode of testing the purity of chloroform. Mix the latter with some oil; if the chloroform be quite pure, the limpidity of the oil will not be destroyed; whereas, any chemical impurity, however small, will give rise to a cloud.—*Lancet, May* 5, 1855, *p.* 462.

145.—*On Forcible Feeding.*—Dr. Szigmondy describes a simple and effectual means of administering fluid nourishment to persons who are unconscious, suffer from trismus, or obstinately refuse food. The patient is laid horizontally on a bed, with the head somewhat raised, and the food is poured by teaspoonfuls through the nostril. Reaching the pharynx, the movement of deglutition is provoked; and as soon as this is perceived, another small portion is poured in. In this way, too, physic can be given to children who resist. He relates a case of severe alcoholic coma, with spasmodic closure of the jaws, which was speedily

relieved by the introduction of a solution of tartar emetic. This means is far easier to practise, and causes less irritation than the introduction of the stomach-pump.

Dr. Beer states that by the magnetico-electrical induction apparatus, the mouth can be sufficiently opened to admit of portions of solid food being introduced.—*Wien Wochen.—Med. Times and Gazette, Aug.* 25, 1855, *p.* 194.

146.—*The Action and Uses of Digitaline.*—MM. Homolle and Quevenne have stated, as the result of their experience, that, in doses of one seventy-fifth of a grain given three times a day, this substance acts as a diuretic in general dropsy, and with great speed and efficacy in reducing the effusion; and that it is not rendered more certain by any material increase of the dose. They further found that, in about double this dose, and sometimes in the same dose, it reduces greatly the frequency of the heart's action; and that the dose cannot reach the one-twelfth of a grain without producing nausea and symptoms of incipient poisoning. Dr Christison, in the 'Monthly Journal of Medical Science,' Jan. 1855, gives us the results of his experience of its use. He believes it to be an energetic diuretic and sedative. His two first trials of it were made in cases of extensive renal anasarca. In one case, diuresis commenced towards the close of the second day, and in the other a day later; in both, the flow was profuse, and the œdema entirely disappeared. He commends strongly the use of such diuretics as digitalis, squill, and bitartrate of potash, in renal dropsy. He has not found them, except in one instance, increase the albumen in the urine; and believes they have been shunned on grounds purely theoretical and baseless. It is the same with digitaline. In the first of the two patients, the albumen quickly and greatly diminished; in both, it disappeared at last, but in one, after some days, reappeared, but in diminished proportion. In one instance, great depression of the heart's action was brought on, instead of a flow of urine. He thinks it very likely that the diuretic and sedative actions do not concur. He gave it in the doses recommended by Homolle and Quevenne.—*Association Med. Journal, June* 15, 1855, *p.* 565.

147.—ON THE USE OF SALT-WATER BATHS IN CHOLERA.

By Dr. Thos. Henry Starr, Brighton.

As long since as the year 1849 I had reasons for entertaining the opinion, which I made known at the time, that the systematic and persevering use of the strong salt-water bath, at a specific temperature, ranging from 106° Fahr. to 112° Fahr., (the latter being the degree which comes under the denomination of fever heat,) would be found an expedient of uniform and great practical value in the worst forms of collapse, and more especially so when, from our earliest attendance, we

find we have to deal with the disease after it has reached the point at which the intolerance of the stomach to the normal action of interna remedies renders their administration futile or even worse than useless. The course of reasoning which drew me to this conviction was founded, to say nothing of the laws of endosmose, on the vital property residing in the skin, of permitting the absorption of fluids into the circulating vessels, as proved by physiological experiments of admitted authenticity, as well as by the many familiar examples of the endemic transmission of therapeutic agents when partially applied. It has been ascertained, moreover, that nutriment may be conveyed through the same channel; and Mr. Erasmus Wilson, in his valuable work on the Skin, says, at page 45, that "instances are on record, in which bathing in warm milk has been successfully employed as a means of supporting life, when the communication between the mouth and stomach was impervious."

The remedial measure which I have tested and found so practically efficacious has the advantage of not requiring internal administration. Indeed I am convinced that those practitioners who exclusively or chiefly rely upon internal treatment in the collapse of cholera will ever be doomed to disappointment in the great majority of such cases, for this obvious reason, that the stomach rejects them *in limine;* and as the blood, from the impetus of the disease, has already parted with the greater portion of its saline and watery constituents, whilst the residue has become cold and stagnant in the heart and vascular system, it stands to reason that our best chance for reaction and recovery depends upon a prompt, vigorous, and well-sustained restoration of its heat, its saline impregnation, and its fluidity. Without further comment I will adduce the evidence which has confirmed my belief, that a favourable result may be almost uniformly accomplished under the worst symptoms of collapse by the comparatively simple and easy process which I have tried and recommend. The proportion of salt I use is about half a pound to each gallon of water.

The sectional outbreak of the pestilence which supplied me with material for this communication occurred here on Sunday, the 30th September, 1854. Its invasion and phenomena were characterized by a peculiar intensity and virulence; its distribution was circumscribed, whilst its existence was transient in the locality where it took place. The houses in which it appeared—viz., Nos. 2, 3, and 21—were crowded with inmates, and probably the least cleanly in the whole street, which is a comparatively obscure one, intersected by the boundary which separates the two parishes of Brighton and Hove.

Two children living on the first floor of 21, Cross-street, respectively named Wm. Moses Glover, aged nine, and John Glover, aged four, were suddenly seized with the epidemic about one o'clock P.M. on Saturday, Sept. 30th, 1854. They both died shortly after midnight, little or no medical aid having been obtained for them.

The next case happened the following day—viz., Sunday, Oct. 1st.

The name of the victim was Eliza Stevenson, aged fourteen. She was attacked, her mother told me, shortly before seven A.M., and although she received the assiduous attention of the medical officer of the district, she died the same evening, after twelve hours of great suffering.

The fourth case in this neighbourhood was the first which came under my control. The patient's name was Sophia Pyrke, aged twenty-two, a servant out of place, lodging with her sister at No. 2, Cross-street. I was called in to this person on Monday, October 2nd, 1854, near midnight. She had been suddenly attacked with symptoms of the disease less than two hours before. When I saw her the cramps were very severe in the abdomen and lower limbs; the countenance was sunk and anxious; there was a remarkable coldness of the body, including the tongue and fauces, with frequent paroxysms of vomiting and purging of fluids, closely resembling rice-water; the pulse was scarcely perceptible. Other remedies inclusive of calomel and cordial antispasmodics failing, I had recourse to immersion in hot salt-water at 100° Fahr. Under its influence the action of the heart and pulse speedily rallied, and with the return of animal heat, the other dangerous symptoms gradually abated. The fever of reaction was slight, and this patient recovered rapidly.

The second case I attended was that of Thos. Buckwell, aged forty-three, living on the ground-floor of 21, Cross-street, being the same house where the children named Glover died three days previously. He was attacked with the worst symptoms of the disease on the forenoon of Tuesday, Oct. 3rd, 1854. I gave calomel freely, combined with opiate confection; I likewise gave cordials of various kinds; nevertheless, the characteristic vomiting and purging, with cramps, increased in severity until the evening, when he was completely exhausted, collapsed, cold, livid, and pulseless. Under these apparently hopeless circumstances, I resorted to prolonged immersion of the whole body in the hot salt-water bath, at 110° Fahr., with immediate, signal, and triumphant success. The pulse rose gradually under its influence—both sight and hearing, which had been much impaired, were simultaneously restored; the vomiting and purging became less frequent; the cramps left him, and the dejections soon presented a bilious tinge. The consecutive fever was considerable, and accompanied with a brownish tongue, and slight delirium. In a few days, however, under careful management, this patient became convalescent.

The third case on my list, for its extreme virulence and obstinacy, afforded if possible, still more conclusive evidence as to the specific value of my mode of treatment. The sufferer's name was Ann Shearing, aged twenty-nine; married, and living in the top story of the house inhabited by the Glovers, and Buckwell—viz., 21, Cross-street. She was seized with general prostration, vomiting, and purging, with violent cramps, on Tuesday evening, Oct. 3rd, 1854. She was attended throughout the night by the medical officer of the district, who

sent for me betwixt six and seven o'clock the following morning, when I found the patient in a state of perfect collapse. Her countenance was shrunk, and death-like in the last degree; she was livid, and without the least perceptible pulse; the heart, limbs, and abdomen were tormented by cramps, which came on in paroxysms, as did the retchings, accompanied with copious rice-water evacuations. She complained in a marked manner, but feeble, whining voice, of inability to see or hear distinctly. In this case calomel had been administered in one large, and subsequent small doses, without any palpable benefit. In this unpromising condition she was plunged, with all possible dispatch, into a strong salt-water bath, which I steadily maintained at 110° Fahr. Under its influence the cramps almost instantly vanished. The heart's action became gradually excited, and the pulse at the wrist returned. I watched the rise and progress of the returning circulation and functions with intense interest and satisfaction; and with a succession of facts like those I have recounted staring me in the face, I could draw no other conclusion than that the brine bath, approaching fever heat, is a practical remedy which more effectually mitigates the sufferings and approaches more nearly to the character of a specific, in the collapse of cholera, than any other with which I am acquainted; and I believe I have investigated the merits of them all After being in the bath for half an hour, the patient was lifted out,. and laid between hot blankets. The vomiting and purging had sensibly diminished in violence and frequency, whilst the dejections soon showed a bilious discoloration. The arterial action and general warmth of the frame seemed to be well established. This improvement, with slight fluctuations, continued till the following morning, when the patient showed signs of relapsing into the worst stage of the disease. Without hesitation I again had recourse to immersion in the hot salt-water bath, the curative effects of which were even more conspicuous and decisive than at first, inasmuch that the symptoms and danger were effectually and permanently subdued by it. The febrile reaction which ensued, though protracted for several days, was of a moderate kind, and by the expiration of a week this patient was quite convalescent.

I might add to the foregoing cases that of Elizabeth Glover, aged twenty-six, mother of the two children who first died. She was affected with the worst symptoms of the epidemic, and became my patient. She suffered very severely, and her recovery was mainly due to the hot salt-water treatment.

During the same week there were two elderly people, named Martin, carried off by the Asiatic cholera, which ran its course very rapidly. They occupied the top floor of one of the infected houses—namely, No. 3, Cross-street. I was not concerned in the management of those cases, and I only adduce them as additional and undeniable proof of the malignant nature of the disease as it appeared in the locality.

I might strengthen the testimony in favour of my remedy, by adducing the case of an elderly woman, named Richardson, whom I attended a fortnight before in Upper North-street, Brighton ; suffice it to say, at my first visit I found her rapidly advancing in the collapse of cholera. Her cure was brought about principally by the external agency of strong salt water at a very high temperature.

The internal remedy (if so it may be called) that I found most useful in the collapse, was Wenham-lake ice. My patients said it materially assuaged their sufferings, and strange to relate, "warmed" them. Its *modus operandi* seems to me to depend upon the astringent, or constrictive property of cold, by reason of which it restrains the morbid elimination of serum from the gastro-intestinal mucous surfaces. I then used it simultaneously with the hot salt bath, the good effects of which it appeared to promote.

With regard to treatment in the premonitory stage, that is, anterior to collapse, I may observe that I arrested the disease at its onset in three, if not four, cases which occured in the infected quarter, by the administration, not of tartar emetic or ipecacuanha, but by stimulant emetics, consisting of salt and mustard, in equal proportions, followed by an active dose of calomel.

Lastly it is worthy of notice, that the ravages of the pestilence were confined to three houses in Cross-street. Whether this interesting result depended on the disinfecting measures that were adopted, I cannot positively determine, but I am inclined to believe it was so, as I effectually fumigated them from the basement to the roof with chlorine gas, copious volumes of which I obtained by pouring one part of strong vitriol on a mixture of two parts of black oxide of manganese, four of salt, and one of water.—*Lancet, July* 21, 1855, *p.* 48.

148.—*Phosphate of Lime.*—Dr. KUCHENMEISTER (Schmidt's Jahrb., 1854, vi. p. 298) recommends the following formula in cases in which phosphate of lime is indicated:—Calcis phosphat., ℥ij.; calcis carbon., ℥j.; sacch. lactis, ℥iij. M. ℥ss. bis terve in die. Instead of the milk sugar, lactate of iron may be substituted, if iron be required. The especial use of the carbonate of lime appears to be that carbonic acid is liberated by the acid of the stomach, and dissolves the phosphate. Lactic acid also is formed from the sugar, or is set free from the lactate of iron, and dissolves the phosphate. The most ready way of absorption, is, however, when the phosphate is given with food, especially with milk, with which it forms a soluble combination.—*Dub. Hosp. Gazette, Feb.* 1855, *p.* 15.

149.—NEW INSTRUMENT FOR THE TREATMENT OF FRACTURES.

By W. H. WINCHESTER, Esq., Surgeon to the Westbourne Dispensary.

[Mr. Winchester's apparatus, described below, will be found to possess several advantages over Mr. Liston's splint. Mr. Winchester says:]

No instrument, I believe, for the treatment of fracture of the lower extremity has received more favourable consideration from the profession than the double inclined plane, and particularly that form of it known as Liston's. But even that has fallen into disuse, having been weighed in the scale of experience and found wanting. Notwithstanding, however, all its defects, necessity still obliges surgeons of all classes, both public and private, occasionally to have recourse to it in extreme cases, a proof, therefore, that the double inclined plane does possess some advantages over other splints. Various as have already been the forms of it contrived by surgeons, yet as all are arranged upon the same general principle, all have proved more or less defective. In adding another form to the list I do so with confidence, believing it will be found as perfect and as generally useful as it is for any one instrument to be. I enclose a sketch of it. It is a modification of Liston's, to which my principle of adjustment is applied, believing that principle to be the only correct one on which the successful treatment of fractures can with any certainty be accomplished. The application of it to the double inclined plane will doubtless be received as a great improvement. The advantages which I claim for it are:—1st. The power of adjustment to the natural curve of the limb, by which exact co-aptation is preserved. 2nd. Displacement is entirely prevented by the application of the swing to the foot-piece, which although simple, is nevertheless most efficient, enabling the splint to move with the limb whatever its motion, whereby the comfort of the patient is materially increased. In addition to these a portion of it can be used as a stump-rest (fig. 3).

The instrument, it will be seen, consists of five pieces: (*a*) thigh, (*b*) knee, (*c*, leg, (*d*) foot piece, (*e*) swing, (*f*) rack for regulating the angle of the footboard, (*g*) the support for stump-rest, (*hhh*) points or indices, (*fff*) central line, (*k*) screws for regulating strength and adjustment.

Its application is as follows:—Apply it to the sound limb, and having fixed the knee and foot-pieces at the desired angle, regulate the length and adjust to the natural curve by giving the necessary lateral movement, so that the limb may rest in its entire length exactly in the centre of the splint. Having fixed it in this position by means of the screws underneath, remove it from the limb, and observing the indices, mark their deviation from the central line, and, by slightly loosening the screws, turn them to similar points on the opposite side, so that the natural curve of the injured limb may be thereby obtained; or if preferred, as more in accordance with the ordinary method of procedure, the length may be regulated by admeasurement, and such lateral motion given as is necessary to preserve perfect co-aptation.—*Med. Times and Gazette, Sept.* 1, 1855, *p.* 214.

The instrument can be procured of Messrs. Savigny, St. James's-street.

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150.—EXFOLIATION OF THE MUCOUS MEMBRANE OF THE UTERUS.

By Dr. Tyler Smith.

Cases of what are styled "membranous menstruation," with the excessive pain attending this affection, are not uncommon in general practice, yet it is only lately that they have come to be properly understood. The older pathologists, as Baillie and Wm. Hunter, believed dysmenorrhœa to depend on an inflammatory condition of the of the uterus at the period of menstruation, and that even in the virgin uterus an organized substance, resembling the decidua, was formed by the lining membrane, and thrown off, when a small organized mass, the shape of the cavity of the uterus, was passed. Whether in the married or unmarried condition, it was known in common language as a "mole."

Dysmenorrhœa sometimes takes place from the very commencement of menstrual life, and there is good reason for believing that it depends on the small size or strictured condition of the os uteri. The menstrual fluid, after it is formed, or while forming, cannot readily escape; distension of the organ speedily follows, which, by exciting the contraction of the uterine fibres, produces pain almost simulating that of labour. Even the action of the abdominal muscles is called into play, and many cases of what are termed "spurious pregnancy," may be very possibly explained in this manner. It is believed, too, that women thus affected, rarely, if ever, conceive or bear children, the normal healthy function of the uterus being interfered with, as well as the woman's health reduced by the constant suffering and pain. Of all the means of cure hitherto tried, dilatation of the canal of the cervix uteri seems to be the best, to which more recently has been added the introduction of a silver canula, as tried by Dr. Tyler Smith.

When in 1846 Professor Simpson, of Edinburgh, announced that the membrane expelled in certain cases of dysmenorrhœa was not simply a fibrinous or inflammatory exudation, the result of some change in this organ, but consisted rather of "exfoliation or detachment of the mucous membrane of the uterus itself," the obstetric world, according to Dr. Tyler Smith, as he explained to his class, was somewhat startled from its propriety, and ever since that time, when the matter has been referred to, it has generally been with strong expressions of doubt and incredulity. Obstetric practice has been hitherto rather undeservedly under a cloud in London, and few opportunities have been afforded to test the matter. We are not aware that any researches bearing directly upon Dr. Simpson's discovery have been published in London, so that the following case, abridged from the notes taken in St. Mary's, may be instructive.

M. D——, aged thirty-two, twice married, but without children, was admitted April 20th, suffering from dysmenorrhœa and the dis-

charge of membranous matter at each monthly period. The history of the case, as taken by Dr. Vernon, was as follows :—She was first married at the age of sixteen, and before this time had menstruated healthily. After marriage she began to suffer from menorrhagia, which she supposed to have been caused by excessive intercourse. This went on, and ended in membranous menstruation, accompanied by sanguineous discharge. She continued to suffer in this way during the lifetime of her first husband ; but seven years after her marriage she became a widow. She now slowly recovered her health, menstruation becoming less painful, and the dysmenorrhœal membrane disappeared altogether. She remained unmarried for several years, but married a second time about two years ago. Six months after this marriage she began to suffer pain again during the menstrual periods, and the characteristic membranous shreds reappeared in the discharge. She now for the first time had internal hemorrhoids, with fissure of the rectum ; blood was occasionally passed by stool ; and defecation, except under the influence of laxatives, caused great pain ; micturition was also painful. In the intervals of menstruation she complained of leucorrhœa, the discharge being sometimes of a brownish colour. Occasionally severe pruritis was present. She had been a patient at several public institutions without obtaining material relief.

At the end of last year, when she first became an out-patient at St. Mary's Hospital, her health was a good deal broken by menstrual losses, the dysmenorrhœal pain, and the leucorrhœal discharge. At this time the membranous matter came away in flakes of considerable size, the largest flakes generally passing on the first days of menstruation. The greatest pain was suffered on the first day of the discharge, and the two or three days preceding its appearance. On examination, the uterus was of the natural size, and the only thing to be remarked was a very contracted state of the os uteri, scarcely admitting the end of a probe into the canal of the cervix. Various remedies were used with the effect of moderating the leucorrhœal discharge and improving the general health. The os uteri was on several occasions dilated mechanically, but it was soon found to return to its former state of contraction. On one occasion Dr. Smith introduced into the cervix uteri a small silver canula about three quarters of an inch long, with a view to its remaining in the canal during a catamenial period. She menstruated while wearing this instrument, the discharge coming away freely in a granular instead of a membranous form, and she suffered much less pain than usual. She herself stated that she had not been so free from pain at any month since the time the disorder reappeared after her second marriage. Some days after menstruation had ceased, this canula was taken out, and at the next two or three monthly periods the pain and membranous discharge returned as before. Dr. Tyler Smith now admitted her into the hospital, with the view of watching the case more closely, and ascertaining, if possible, the exact

nature of the discharge. Shortly after admission menstruation took place, and the membranous flakes were carefully collected and examined with a lens and by the aid of the microscope. The largest membranous flakes exceeded the size of a shilling, and were about the eighth of an inch in thickness. When examined in water, they presented on one side a smooth surface, and on the other side the surface was flocculent and irregular. A vertical section showed the membrane to consist of a fibroid layer, in which was imbedded an abundant cell-formation, made up of multitudinous nuclei and celloid particles. From the free or smooth surface, numerous villi projected, while from the flocculent surface, long tubular glands could be seen passing downwards. These glands had a basement membrane, surrounded by an outer thin coating of nuclei and the fibroid tissue, and were lined with epithelium. The tubes of the glands were full of cylinder epithelium, nuclei, and granular matter. The tubular glands could be seen with the naked eye, and, with the villi of the surface, were characteristic of the uterine mucous membrane. There appeared to be no doubt that the membranous flakes were the mucous membrane of the fundus uteri, cast off *in toto*.

This case, then, strongly supports the pathological views of Dr. Simpson. An intelligent young German physician, Dr. Spiegelberg, of Gottingen, who saw this case with Dr. Smith, informed us that the celebrated Virchow, of Wurzburgh, and Professor Heschl, of Olmutz, formerly senior assistant to Rokitansky at Vienna, had examined these exfoliations, and found them also to consist of detached mucous membrane.

On the approach of the next monthly period, after this examination of the membranous formation, the silver canula was again introduced, with the effect of diminishing the pain as before, and the discharge also contained much less flaky matter. The tube was allowed to remain *in situ*, and a second period has since been passed with marked diminution of pain, and alteration in the character of the discharge.

We have given an account of the present case because of its intrinsic interest, and to note the relief afforded by keeping the os uteri open with the canula. It remains to be seen how far the benefit derived in this way will proceed, but the use of such a means is certainly rational in a form of disease which obstinately resists ordinary modes of treatment. In other cases of membranous menstruation treated at St. Mary's, Dr. Smith has tried local abstraction of blood, counter-irritation, mild mercurialization, iodism, tartar emetic, (given at the periods so as to keep up constant nausea,) opiates, preparations of steel, cubebs, &c., &c., without arriving at any certain means of checking this troublesome disease. We ought not to omit to mention that in the case now under comment, full doses of camphor lupulin had been given with a view to their anti-aphrodisaic effects.—*Lancet, June* 16, 1855, *p.* 608.

151.—*New Form of Astringent Application.* By Dr. William Bayes, Brighton.—Pure glycerine dissolves nearly its own weight of tannin, affording a very powerful local astringent application.

The solution of tannin in pure glycerine appears to me to supply, a desideratum long felt, and capable of a great variety of useful applications.

The solvent property of glycerine over tannin allows us to form a lotion of any desirable strength, as the solution is readily miscible with water.

The solution of tannin in glycerine, in one or other of its strengths, is peculiarly applicable to many disorders of the mucous membrane, readily combining with mucus, and forming a non-evaporisible coating over dry membranes; hence it may with benefit be applied to the mucous membranes of the eye and ear in many of its diseased conditions. It forms a most convenient application to the vaginal, uterine, urethral, or rectal membranes, where a strong and non-irritant astringent lotion is desired.

In local hemorrhages, where the bleeding surface can easily be reached, it will prove very convenient, and may be applied either with a sponge or small brush.

The solution must be kept in the dark, and should not be prepared for any great length of time before used, or decomposition will occur.

It is singular that glycerine does not possess the same property towards gallic acid.—*Association Med. Journal, Sep.* 29, 1854, *p.* 885.

152.—*On Gluten Bread.* By Dr. John Aldridge, Dublin.—Perhaps the publication of the following form for the preparation of gluten bread may save others the time and trouble I have myself experienced, in endeavouring to produce an agreeable and suitable edible. Whatever theory we may entertain as to the essential nature of diabetes mellitus, it is now generally admitted, as a practical fact, that benefit is derived in this disease from the limitation of the saccharine elements of food to the smallest possible quantities. As bread of some kind can scarcely be omitted from any system of alimentation, it is, therefore, desirable that we should be capable of making a variety which, containing but very little sugar or starch, should still be nutritious and palatable. At Bewley and Evans' we are frequently required to prepare a gluten bread, and the following is the formula which, after many experiments, we have found to yield the most advantageous product:—

℞. Fresh moist gluten, 24 oz.; bicarbonate of ammonia, ʒiij. gr. xij.; common salt, ʒiss.; powdered carraway, 48 grs.; wheaten flour, 4½ oz.; powdered bran, 1½ oz.; salt butter, 4 oz.

The above quantities yield 24 oz. of bread, when baked. It should

be baked in small and flat circular tin pans, placed on a moderately heated hot-hearth.

The only assistance that I derived from books in the construction of the foregoing formula, was contained in the following passage in 'Bouchardat's Manuel de Matière Médicale', 1846, p. 515:—"Avec 80 de gluten, 20 de farine, et une petite quantité de levûre de bière, j'ai fait préparer du *pain de gluten* qui a rendu de grands services aux malades affectés de glucosurie." I need scarcely say that this process yields a leathery, tasteless mass, nearly impossible to masticate.

To render small quantities of bread light and spongy, I prefer bicarbonate of ammonia to fermentation by means of yeast, as without great care the latter is liable to get sour; and the bread ought to be made fresh from day to day. The addition of butter is essential to make the bread easy to masticate,—to eat short,—as, I believe, the technical expression is.

Second best flour, at about three shillings per stone, is that which I employ for obtaining the gluten. This is to be made into a stiff paste with cold water, and then kneaded with the hands under a current of water, on a slanting board placed in a ten gallon black crock, until starch can no longer be detected in small portions (taken from different parts of the mass) by tincture of iodine. The stone of flour yields from three and a-half pounds to four and a-half pounds of gluten.—*Dublin Hosp. Gazette, June* 15, 1855, *p.* 153.

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